SHORT TAKES: NewTek Introduces New Product — Inspire 3D!

NewTekNIQUES

FOR LIGHTWAVE 3D & VIDEO TOASTER/FLYER USERS

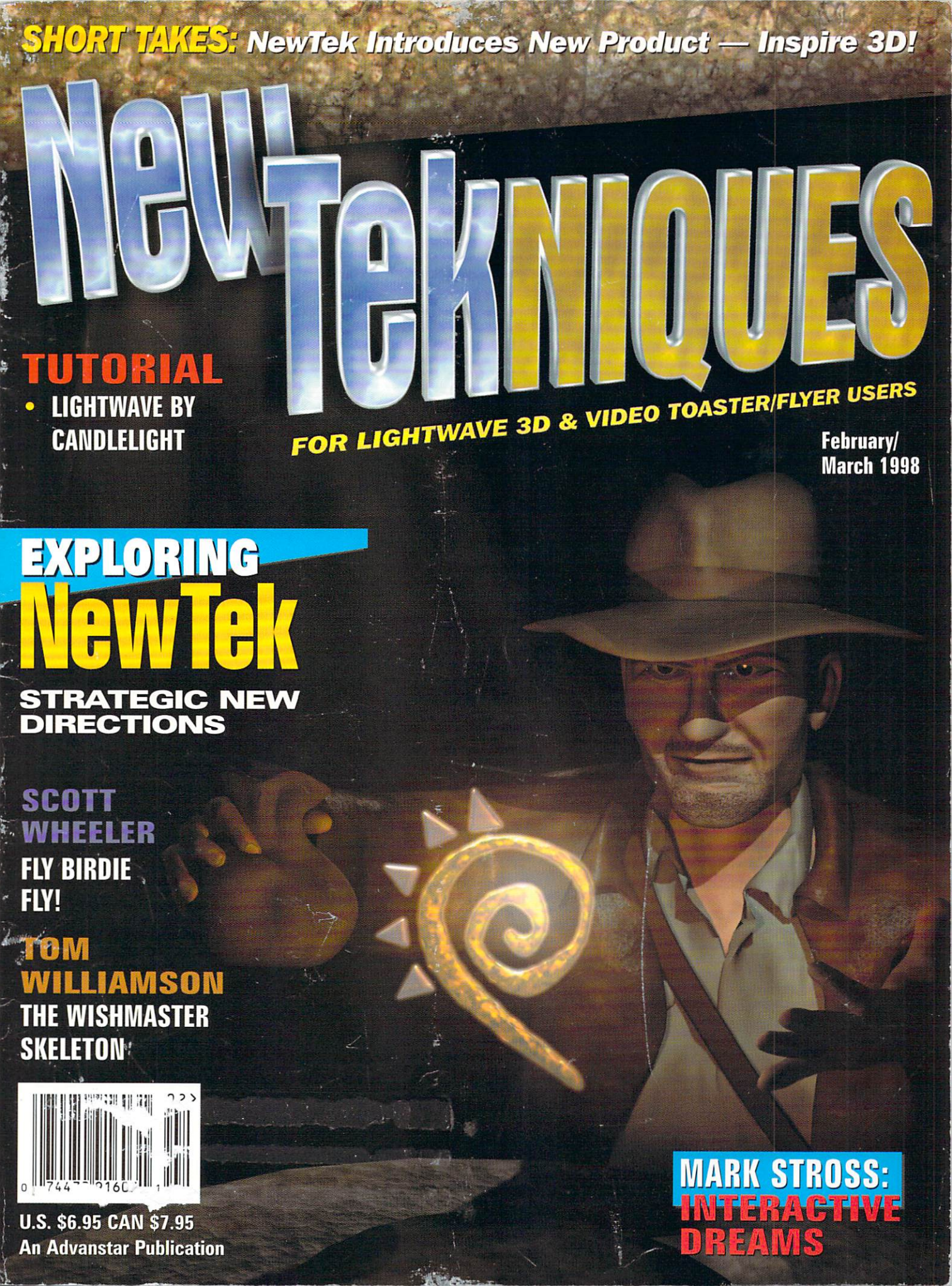
February/
March 1998

TUTORIAL
- LIGHTWAVE BY CANDLELIGHT

EXPLORING NewTek
STRATEGIC NEW DIRECTIONS

SCOTT WHEELER
FLY BIRDIE FLY!

TOM WILLIAMSON
THE WISHMASTER SKELETON



MARK STROSS: INTERACTIVE DREAMS

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RealiTools... just what every animator has been waiting for! This collection of 16 LightWave plug-ins from Dynamic Realities includes:

Soft Reflections: A shader that allows realistic blending of shadows and can change a surface's reflectivity and transparency based on the brightness of the reflection. There is also a distance falloff option. The image above is an example of this superb shader.
Lighter: One of the most advanced lighting engines for LightWave available! It allows selective inclusion and exclusion of lights, phase shifting the light, and changing the contrast of the surface's terminator. You can also have a surface transmit light (i.e. paper).
Fresnel Shader: Controls for contrast and bias, surface modifications, and value limiting give this Fresnel shader the ability to create some of the most sophisticated effects ever seen, including pen and ink effects!
Pencil Shader: This shader adds custom lines over the top of an image for that hand-drawn look.
Shadow Blend: Ease the frustrations of compositing! This plug-in eliminates the need for front-projection mapping of shadows in CGIs.

Also included: ***Video Lines, Video Noise, Brightness and Contrast Controls, QTVR Panorama, Ortho-VU, Front/Top/Side Views, Layout Distance Tools, Object Replacement, VistaPro Script Read/Write, Parenting, and PointString.***

FRACTALIZER

Tired of the same old look to your objects? Well, now you can spice them up with ***Fractalizer*** from Dynamic Realities! Make dirty surfaces, electric sparks, plasma, rust, and more with this new fractal noise shader. The features include:

Five Color Spectrum: Allows easy and intuitive changing of the cloud size and the contrast between multiple colors. By applying the spectrum, you can obtain the effect of electric sparks.
Radial Falloff: Specify your effect to disappear along the radius.
Fractal Opacity: This feature makes it possible to put the fractal in a precisely defined area on the object. You can obtain many unique effects, like a burned out hole, by applying Fractal Opacity with Fractal Morphing.
Fractal Morphing: Allows obtaining the effect of a changing color or texture without tedious object-by-object morphing. The possibility of changing each parameter gives you full control over the texture morphing.
Keyframeable: All effects and controls are keyframeable for smooth morphs and gradual changes over time.

Fractalizer will give your objects a whole new look!

Dynamic Realities

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Dynamic Realities' software available at

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NewTekNIQUES

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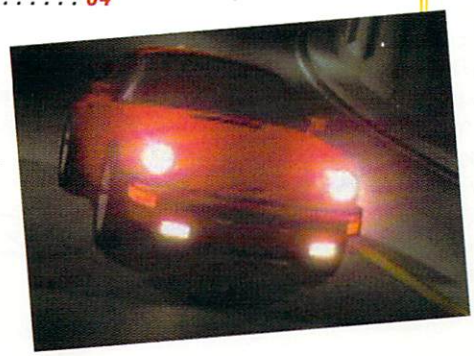

ON THE COVER:

Ace Miles designed this issue's cover which, like most objects, started its life as a box. It was modeled and textured in four days using MetaNURBS. Miles is serving as lead animator for NewTek in San Francisco and also teaches LightWave 3D for the Academy of Art and 3D Exchange.

TekMasters

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TekTALK

OUR EDITOR'S OPINIONS ON IMPORTANT NEWTEK ISSUES

BY JOE TRACY

Standing still in the Cave of Uncertainties can be very dangerous.

Beyond the CAVE OF UNCERTAINTIES

Life is full of booby traps and decisions. What direction should I choose? How do I get beyond the obstacles to reach my goals? What sacrifices do I make for something I want? It's as if we're swept into an Indiana Jones adventure trying to reach that glowing statue that represents the fulfillment of a dream.

Temple of Dreams

Action is the precursor to reaching a dream. People like John Gross, Scott Wheeler, and Grant Boucher didn't become successful overnight. They had to travel through the Cave of Uncertainties and use their enthusiasm for that dream to master their domain. It was the same with OCS/Freeze Frame/Pixel Magic (featured in the July/August issue of *NewTekniques*). This is a company that a year ago came out of the blue to win the video sequel rights to *Casper*. Contributing to that win was the artists' desire to master the LightWave 3D *Casper* art before making the bid. That dedication has paid off again as they just recently were signed to do the next *Casper* project! As you read "Hollywood Roundup" (page 10), keep in mind that the advancements these LightWave companies have made started with a LightWave animator with a dream. They have been to the Cave of Uncertainties and beyond.

Cave of Uncertainties

Deep within the Cave of Uncertainties is a company called Amiga, Inc. It has been nearly a year since Gateway 2000 became involved with the Amiga, purchasing the assets and forming Amiga, Inc. This apparently gave assurance that the platform would be the next Phoenix "rising from the ashes." Outside of a few licensing announcements, however, we have not seen any progress from this company, which is losing more customers every day that they don't make a decision. Remember that the Cave of Uncertainties also contains booby traps and if you stand in one place, you'll be hit by the rolling stone or flying dart as other explorers pass you. Gateway 2000 and Amiga, Inc. must act now (not tomorrow, but *today*) if they expect to have the support of companies like NewTek and the support of users who are growing increasingly frustrated with the stagnant exploration.

Temple of NewTek

Beyond the Cave of Uncertainties is a bright, glowing room known as the Temple of NewTek (pages 18-23). Above a square stone in this room floats the "Wave of Light" treasure (also known as LightWave) that is sought by many. It's a beautiful treasure that seems to light the room like none other. But there's something more. A light wind seems to swirl around the room whispering the words "Inspire 3D" (page 8). It's a beautiful sound that you know will someday lead to another adventure. Yet in this room there remains another discovery to be made! Pushing aside the square stone reveals a bright light that fills the room with such force that the walls begin to crumble. It's not a scary experience, however, because behind the crumbling walls are bright and beautiful colors reflective of the beautiful Northern Lights. It's a very curious sight with the meaning unknown until you glance down and see that the square stone has crumbled away into a sculpture that says NAB 1998. Hmmmm. I wonder what that could mean?

Joe Tracy

NewTekniques

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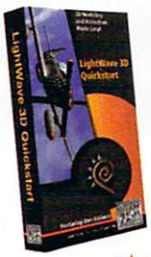

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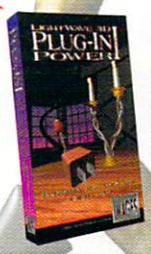
A complete overview of LightWave 5.5. NewTek's Don Ballance provides fundamental concepts in animation, modeling & surfacing techniques. Includes MetaNURBS tutorial plus a special "update" section for current LightWave users.

New



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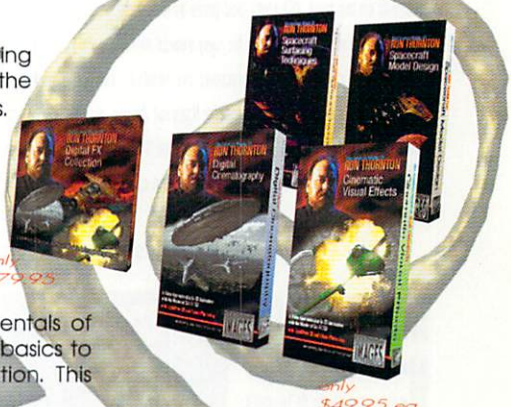

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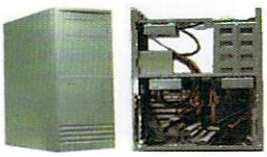


The National Amiga Flyer Case is a modified PC mid-tower case created for the casing needs of Video Toaster Flyer owners. It includes two fans, four 3.5-inch drive mounts, a 230-watt power supply, SCSI connections on the back, ISA slots, and three activity light indicators. The drives slide in and out of the case for easy access and the case is made of a snap-together design so that no screws are needed. The National Amiga Flyer Case is made and distributed by National Amiga, dealers of Amiga products. The cost is $164. Additional fans are $10 each. National Amiga can be found on the Web at www.nationalamiga.com or by phone at (519) 858-8760.

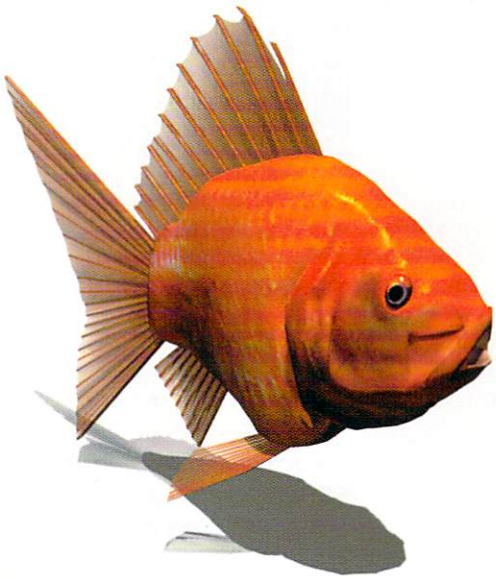
Circle Number 109

IMAGEFX 3.0

Nova Design, Inc. announced a major upgrade to its ImageFX product, ImageFX 3.0. Referred to as the "Users Request" upgrade, version 3.0 contains an updated interface, instant asynchronous redrawing of images, large previews, multiple image windows, real image layers, and more special effects. The interface still follows professional standards for the Amiga and the video industry with its paint box style approach, which has been built upon in ImageFX 3.0. The upgrade interacts much closer with the Video Toaster Flyer than previous versions and contains a wide range of image file formats to support multi-platform images. The new Clouds module allows you to generate true fractal clouds that can animate their movement and evolve over time, via batch processing, from one form to another. Other new effects are also included, like Splash, which uses ray tracing and bump mapping to create liquid simulations of rain, water ski surf, Jell-O wiggles, and more.

The upgrade from the ImageFX 2.0 through 2.6 release is $79.95 plus shipping. Versions of ImageFX prior to 2.0 can be upgraded for $124.95. You can order via (800) 462-4369 in the U.S. and Canada. For international orders, call (804) 282-1157.

Circle Number 194



Viewpoint Textures

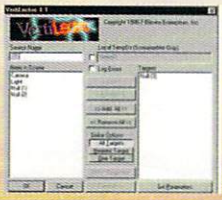
Viewpoint now offers texture maps for license with the 3D models in its Premier catalog. Created in response to increasing customer demand for production-ready 3D models, Viewpoint's photorealistic texture maps—combined with its Premier library of more than 10,000 high-quality 3D models—offer a cost-effective and time-saving solution for 3D content developers.

When licensing texture maps with Viewpoint models, customers will receive the model geometry, UV coordinates, and image files applied to the geometry. These image files can be modified easily with photo editing tools, allowing users to customize the textures, and any accompanying layers, for their specific needs.

Viewpoint's texture maps can be applied to the majority of its models for between $200 and $400. For models purchased in a Freedom Collection, the most popular method of licensing models from Viewpoint, texture maps can be purchased starting at $100 per model. Call Viewpoint at (801) 229-3000 or browse www.viewpoint.com.

Circle Number 195

VertiLectric 1.1



VertiLectric 1.1, with many new features, is now shipping for Intel and DEC Alpha. Some of the new features include:

Static Bolts - Allows you to create bolts that hold their shape across frames.

Thick Bolts - Allows the designation of a starting and ending radius to bolts.

Strike Through Parents - Allows you to create bolts that strike through a parented chain of null objects.

Morphable Bolts in Layout - Gives you the option of using level subdivided bolts in LightWave 3D's Layout. It creates bolts with the same number and order of points every time, thus allowing them to be made morphable.

Also new is an improved user interface. Version 1.1 also allows you to set a directory to use for ScreamerNet rendering. The cost for VertiLectric 1.1 is $99.95 plus shipping. To order call (800) 205-5161 or visit the Blevins Enterprises Web site at http://bei.moscow.com.

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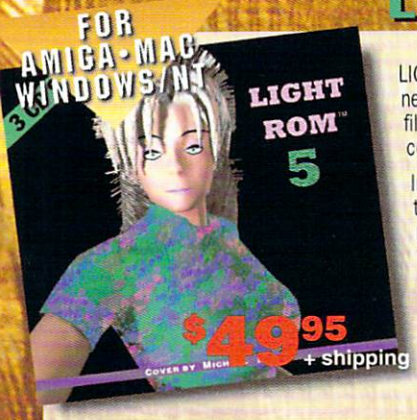

LIGHT-ROM 5 is a three CD-ROM set featuring a new collection of Lightwave objects & scene files for any version of Lightwave on any computer platform supported by Lightwave.

In addition to the new Lightwave collection, there are collections of Image maps and Image map sequences, 3D Studio objects (200 megs - importable into Lightwave), Imagine objects (190 megs) and 240 Image Backdrops in 752x 480 resolution in IFF24 & Targa formats. As with all LIGHT-ROM CD-ROMs, these collections on LIGHT-ROM 5 include thumbnail renderings for easy previewing (except Imagine objects).

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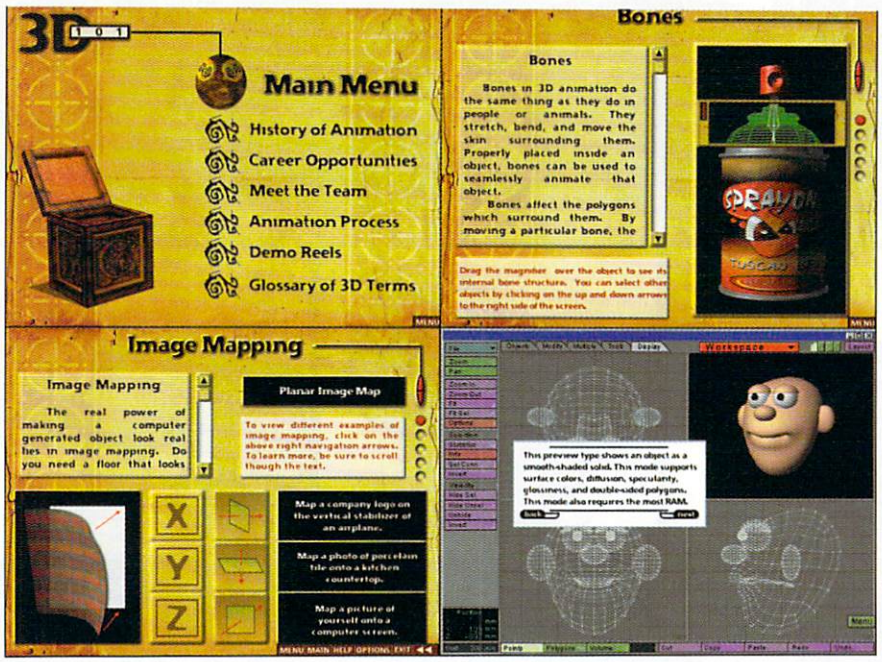
NEWS OF NOTE FROM THE WORLD OF NEWTEK AND BEYOND

ShortTakes

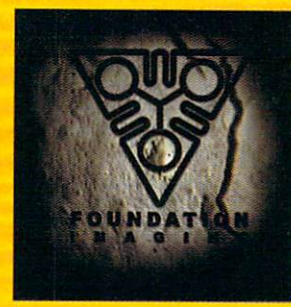
NewTek Introduces New Program—Inspire 3D



NewTek Partners, L.P. is preparing to ship a new product to the market in mid-March called Inspire 3D. The 3D program is designed specifically for the needs of print graphics artists, Web developers, ad agencies, and multimedia content developers. Inspire 3D will be compatible with Intel and Mac systems, both of which will be released at the same time.

Inspire 3D, with the same basic tools as NewTek's LightWave 3D program, will cost around $500. The program includes what NewTek's marketing director Steve Herrmann calls a "killer multimedia tutorial." The tutorial takes the user through a 3D learning experience that focuses on the aspects of 3D history and creation. As the tutorial advances, it gets more in-depth, helping the user to master 3D techniques.

For more information on Inspire 3D, check out NewTek's Web site at www.newtek.com and visit the NewTekniques Web site at www.newtekniques.com.



Foundation Imaging Prepares to Move

Foundation Imaging, one of the leading LightWave 3D effects companies in the industry, is preparing to move its offices due to an overcrowding of animators at the current location. The move, expected to be completed by late February, will be only three blocks from its current location in Valencia, CA.

According to Jeff Scheetz, supervising animator for Foundation Imaging, the move was motivated by a new show they are doing called "Mystic Knights of Tir Na Nog" (see "Hollywood Roundup," page 10). Foundation Imaging's new home will be three times bigger than the current location and will include a fully equipped practical effects shop, a blue-screen shooting stage, room for many more animators, and a permanent motion capture stage with software that can export LightWave scene files. Foundation Imaging also plans to hire more animators in the coming months.

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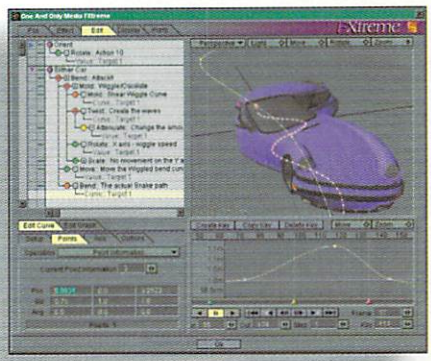

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Circle #205

Hollywood Roundup

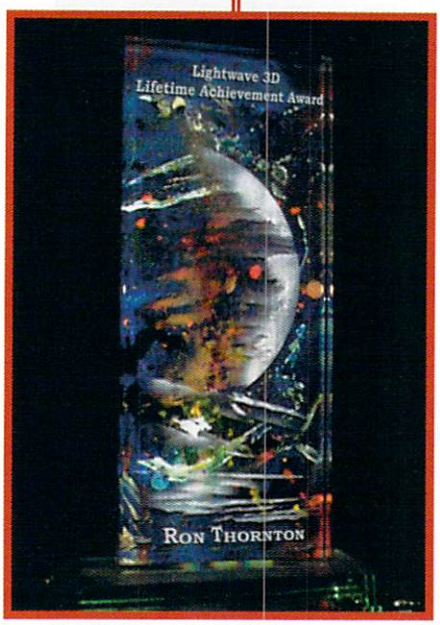
BY JOE TRACY

While *Titanic* has garnered a lot of attention from the LightWave 3D industry (see the December/January 1998 special *Titanic* issue of *NewTekniques*), a number of other Hollywood LightWave projects are in production or now on screen.

Last April, *NewTekniques* reported on a movie to be released by Trimark Pictures called *The Warrior of Waverly Street*. Originally it was slated for release in April 1997, but was delayed for eight months and is now in wide release under the new title of *Star Kid*. The movie contains more than 100 LightWave shots courtesy of Computer Café. Recently, Computer Café was contracted to do 29 shots for *Barney's Great Adventure—The Motion Picture*. The supervising animator for that project is "WaveFX" columnist Tom Williamson. The Barney movie will use LightWave for compositing, particles, 3D characters, and morphing/warping. Currently, Computer Café is wrapping up the title sequence to "Bloody Roar," a video game for Sony PlayStation.

Tomorrow never dies for Digital Muse, which was responsible for many effects in the James Bond *Tomorrow Never Dies* trailers and teasers. Using LightWave, Muse created the sequence of moving red balls and composited Bond actor Pierce Brosnan over them. Muse also created the inside barrel of the gun that the camera travels through to see Bond. The movie title on the trailers were also created in LightWave. Muse now has its hands full with a Pampers TV commercial (to air in Italy), a Lockheed Martin TV commercial (to be released nationwide around mid-March) and a German news-magazine show in which Muse is creating all the identity bumpers. Four upcoming episodes of "Star Trek: Voyager" and two of "Star Trek: Deep Space Nine," include Muse effects as does an upcoming trailer for the movie *Virus*. One of the big LightWave scenes in the *Virus* trailer has the camera traveling through space, past an alien scanner, past Mars, past the moon, past the Mir Space Station, through the eye of a hurricane, and ending up at a ship's satellite dish.

The NT people who left Digital Domain's LightWave NT team to form Station X Studios have embarked upon new projects, including work for the movie *Phantoms* (produced by Neo-Motion Pictures for Dimension Films/Miramax and in theaters now). For the movie, Station X used LightWave to create the "Mother Mass" formation shot (digital crowd of people forming into tower/creature) and the creature final death sequence, both from scratch. They also added a digital snow storm and environment effects to the creature, done by WETA in New Zealand, in order to make the creature more impressive and more of a "force of nature." There were also a number of shots the studio enhanced and recomposited. Everything Station X Studios did for the movie was modeled, textured, lit, and rendered in LightWave 3D using Steamer and Particle Storm extensively. All 12 shots were composited in Digital Fusion Post 2.0. The job was completed in four weeks during the 1997 holiday season. The Station X Studios visual effects supervisor was Richard Payne with Fred Tepper, Karl Denham, Danny Braet, Frank Aalbers, Kent Lidke, Peter Nye, and Glen Miller doing the majority of the overtime on the job. Additional program support was provided by Fori Owurowa and Dan Milling.



Having completed material for Star Trek: The Experience at the Las Vegas Hilton (ride safety video and replicator effects), Foundation Imaging is now preparing to boldly embark on a new adventure, "Mystic Knights of Tir Na Nog," a live-action adventure that some are calling "Power Rangers meets *Braveheart*." Foundation Imaging has been contracted to do 50 episodes of "Mystic Knights" for Saban Entertainment. The show will be shot in Ireland where Foundation Imaging co-founder, Ron Thornton, will soon be headed in order to direct three of the episodes (he also directed numerous "Hypernaut" episodes). As a direct result of "Mystic Knights," Foundation Imaging has hired five new animators with more soon to come. Thornton was recently awarded a LightWave Lifetime Achievement Award at NewTek Expo 1997 for the outstanding work he has accomplished with LightWave in the industry. *Batman: Sub Zero*, featured in the July/August 1997 issue of NewTekniques with Foundation Imaging's LightWave work, hits video stores on March 17.

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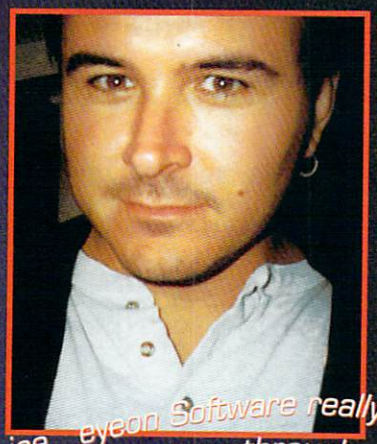

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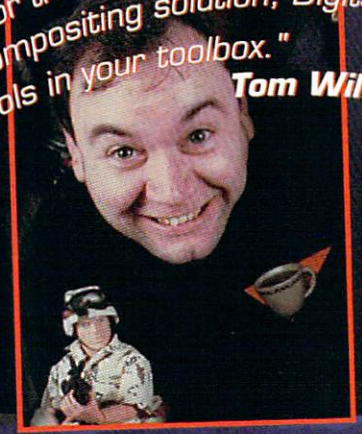

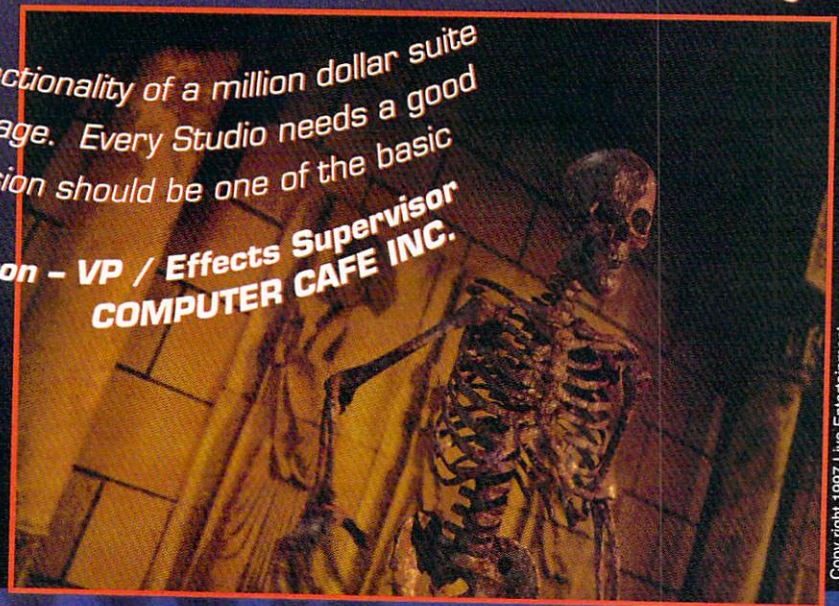

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Circle #206

NewTek Expo Job Fair Results in Employment

BY MOLLY DINKINS AND DICK DE JONG

The 1997 NewTek Expo Animation Job Fair (and Critiquing Sessions) provided employment opportunities for at least 16 Expo attendees and talented LightWave 3D animators who are now employed by major LightWave-based visual effects companies.

NEWTEK EXPO

The NewTek Expo Job Fair took place in October just a short block from Universal Studios. Giselle Von Stauber of NewTek recruited 11 companies to interview applicants and Ursula Schwalbe of The Advanstar Entertainment Production Group deftly juggled patient job seekers and generous Hollywood professionals through 299 scheduled interviews.

Was it fear and dread that caused people to sweat outside the interview rooms, or were they exhausted from their sprints across the Universal City Hilton between classes, lectures, and exhibitions? Interviewers ran, too. Ken Wilder of OCS taught a two-hour LightWave course in between 32 interviews, while Jeff Scheetz of Foundation Imaging resolved an office crisis between 42 job applicants.

From Pasadena to Paris, Monterey to Montreal, professional, amateur, and student animators brought demo reels, stills, and resumes in hopes of landing a job. One teen-age artist hauled along a two-foot metal sculpture of a sci-fi monster, and left with encouragement and advice about translating his considerable 3D sculpting skills to the computer screen.

Dave Adams from Ann Arbor, MI, capitalized on the reviews of his work from the folks at Foundation Imaging. Known as "LightWave Dave" he says, "I followed up on all of the advice and within three days, I had improved work in Ron's [Thornton] email box. Two days later, I sent more. Boom. Hired." Dave now lives in Los Angeles.

Job candidate T.J. Nabors broke all the rules. Her demo had no spaceships and no monsters, but her evocative LightWave artistry received kudos from several studios. Will Vinton enticed her away from Texas (and her college-aged son) with a promise of a creative community and good salary.

So what do the Job Fair and the movie *Titanic* have in common? Both opened doors for LightWave animators and both are closing a door on an exciting chapter of LightWave history. No longer can you jump from cleaning swimming pools into the Hollywood talent pool. No longer do companies just want earnest and eager LightWave novices. Too many experienced and skilled LightWave aficionados are waiting in the wings for an opening on screen.

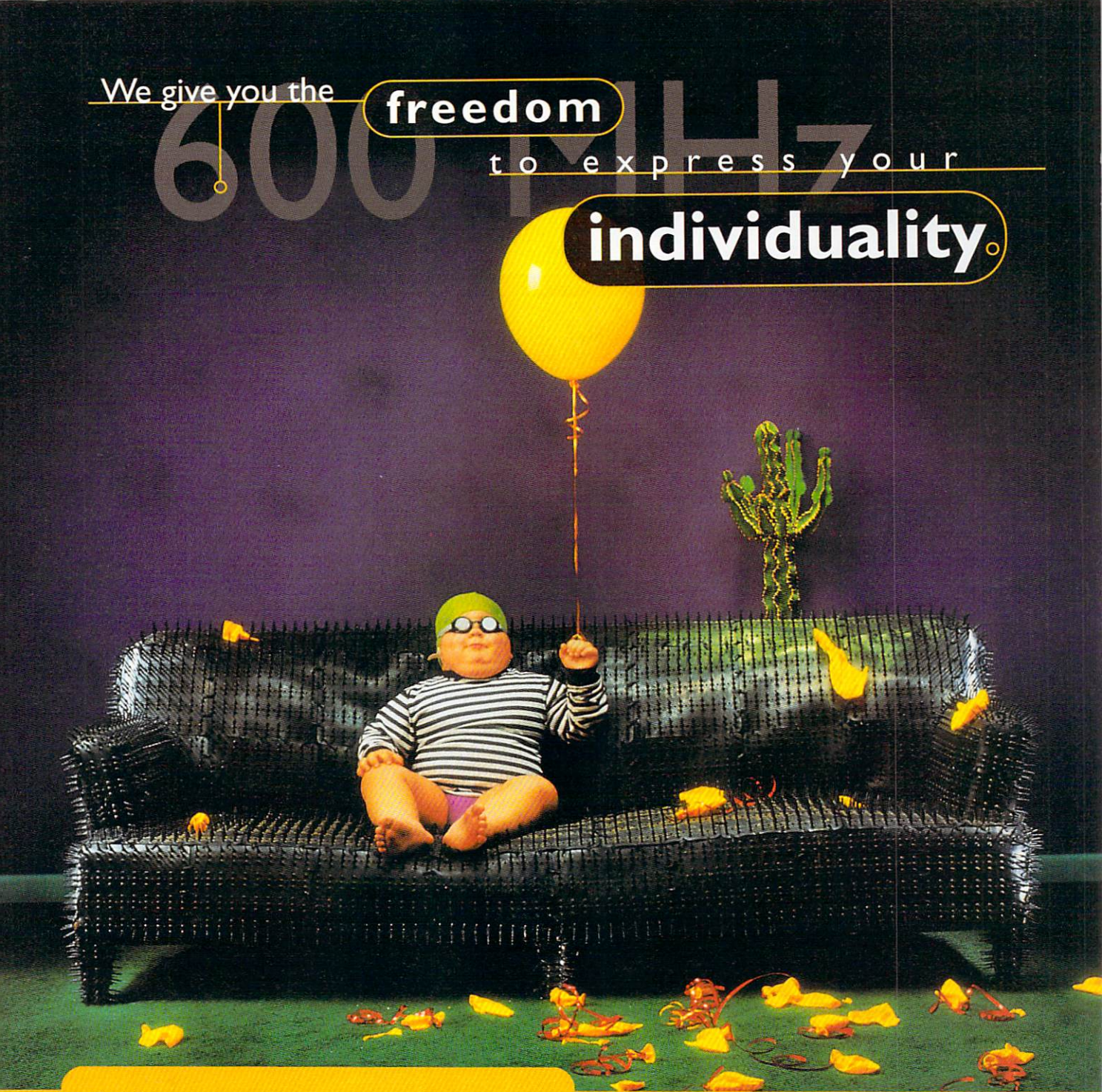
> "I got my dream job. My flight to California leaves at 4:10 Christmas Day. Right now, I'm thrilled out of my head."
>
> Eric Hance
>
> A Job Fair attendee just before leaving for his new job.

And the movie *Titanic* has shown the world that accomplished LightWave artists can compete with the big boys and can join the bad boys of Hollywood, so the job call will be for experience over enthusiasm.

As Dave Adams explained, "I learned several valuable lessons as a result of the Expo. I learned that no one can afford to hire 'potential.' You've got to be in the ballpark already and then be able to see criticism as a challenge that needs to be met, and not as an insult. Prove to them that you're listening, that you do see what they are looking for, push yourself to meet that challenge, and get right back in their faces with the results."

Eric Hance reflected on his Expo experience, "Working at Foundation Imaging has always been a dream of mine. It seems as if I've seen everything Ron Thornton has made since I was around 6 years old. After I saw 'OedeBattle' at the LightWave Theatre I was dying to meet Jeff Scheetz. The Job Fair put me in the right place at the right time and I got my dream job."

This Expo story has a true Hollywood ending: Eric loves his new job.



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TEKMASTERS

MEET THE INNOVATORS OF THE INDUSTRY—PAST, PRESENT, AND FUTURE

Mark Stross

INTERACTIVE DREAMS

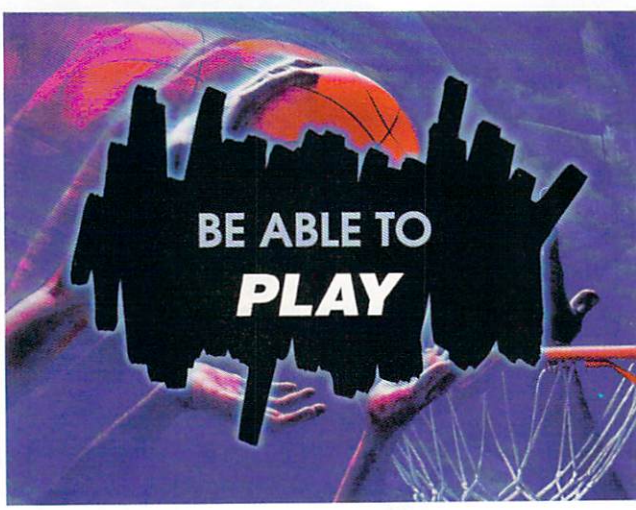
EDITOR'S NOTE: **Mark Stross** is a prime example of a person using NewTek products to help fulfill his dreams. With TV shows and interactive presentation systems, Stross has made his dreams a reality. We recently cornered Stross to find out about his past, future, and a new product getting much attention called PlayableTV.

NewTekniques: To start, tell us a little about your background.

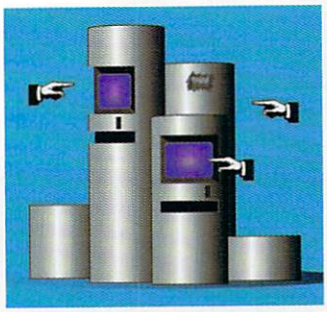
Stross: From my first hacking on a Teletype terminal linked to a mainframe through a 300-baud connection during high school, I became hooked on technology. Stealing rolls of paper towels from the school bathrooms to feed the hungry Teletype, I spent hours listing programs and learning about how computers work.

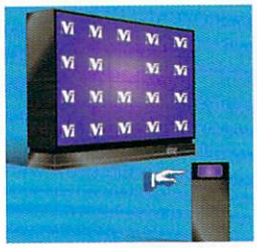
At Pepperdine University I was the first student to get permission to direct a play in its new $10 million Smothers Theater, which had just been built. The play I directed was "To the Chicago Abyss" written by Ray Bradbury. He personally helped me to mount this production, which used every multimedia device in the theater. This was my first public multimedia event.

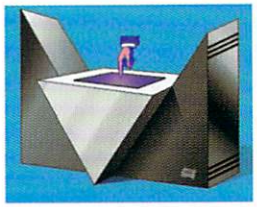
NewTekniques: When people hear the name Mark Stross, they tend to now associate that name with PlayableTV, which we will get to in a minute. You've had many accomplishments with the Video Toaster Flyer prior to PlayableTV. Tell us about them.



Left and right: PlayableTV is an interactive broadcast-quality presentation system controlled by TV sets with touchscreen controls.







Above: *Playable Television can be setup for many uses ranging from business presentations to interactive educational projects.*

Stross: Playable Television, my new interactive dream, didn't just happen. In fact, it's a company called Marmalade that needs to take the credit. In the beginning, Marmalade was formed to do digital design. Today, Marmalade has a long list of accomplishments that includes working on rides at Disney, owning percentages of television shows like "Weird TV," "Mysteries From Beyond the Other Dominion," and its newest, "America What Do You Believe," to creating interactive controls for movies like *Afterburn*. Well, it was Marmalade's quest to build a working relationship with NewTek so that future plans could be created. The relationship with NewTek established the infrastructure needed to create Playable Television.

NewTekniques: Tell us a little more on how you used the Flyer with some of the TV programs you previously did.

Stross: At the time, however, the Flyer was still not shipped and was under construction. Tim Jenison, so the story goes, flew Marmalade's Flyer board to Fed Ex and declared the Flyer shipped. Now the first board ran a little hot. Nothing a few fans couldn't handle, and it was a little rough in the digitizing department—nothing that a little patience couldn't solve. After a few updates, the Flyer was a major part of "Weird TV" and the Flyer output was being aired on network television without a hitch.

"Weird TV" was a fast-paced, strange roller coaster ride into the depths of American weirdness. "Weird TV" as an independent television show was on network television in 40 percent of the country against "Saturday Night Live" for one year. We even got ratings that held our own against SNL. No one thought it was possible that a completely independently owned show could get any networks to air its content. Well guess again. "Weird TV" got slots on independent stations including Channel 13 in Los Angeles, and the Fox Network in San Francisco. It was unprecedented and fun to have done a small feat to dispel negative thinking. During this period, NewTek was approached by Marmalade to use the Flyer exclusively to edit our show. Our budgets were small. Our editing was limited to one Beta SP industrial bay that could do a limited amount of effects. After discussing our plans with Tim Jenison, and meeting with the newly installed CEO, Dwight Parscale, a contract was created between Marmalade and NewTek. NewTek gave Marmalade two editing systems to use on "Weird TV." The staff at NewTek worked with us and made "Weird TV" look more sophisticated.

NewTekniques: How did PlayableTV get started?

Stross: Before "Weird TV" existed, I found out about the Flyer (just before NAB 94). I approached Tim Jenison with my interactive idea, using his board as the video engine. He thought it would work, and after receiving the first Flyer board at "Weird TV," I knew that it was perfect as an interactive real-time video engine with great image quality. Playable Television's future was set two years later when the first NTSC touchscreen from Philips arrived at our lab, completely unexpectedly. Diane Orem, our president at Playable Television, looked at me looking at the box and said, "It's time to build your dream." From that point forward the concept and execution of Playable Television evolved into reality.

NewTekniques: What exactly is PlayableTV?

Stross: Playable Television is the world's first fully interactive, broadcast-quality, instantly responding presentation system controlled by TV sets with touchscreen controls. The technology works so well that grown men giggle while using it. We have included some pictures because describing our interface is always difficult if you don't see it. Our buttons are fully moving 3D shapes that can be anything a client wants them to be. Our screens are broadcast-video quality, so anything that can be shot with a camera can become an interactive button or interactive event. Our real asset is our content. The machines are fun to interact with because they are creative, alive, flashy, inspiring, and very fast.

NewTekniques: How does PlayableTV integrate with the Video Toaster and Video Toaster Flyer?

Stross: Playable Television uses

TekMasters

custom software and hardware to interface the Video Toaster, Flyer, Amiga, and NTSC touchscreens together. The key to the success of the whole integration is a program called Fuselage. Fuselage is our backbone and it does the interactive tricks that make Playable Television responsive. Under development are new tools like Twin Engine, which is our next step in Playable Television's development. The future already seen in our lab is incredible. We are working around the clock to unleash the full potential of our product.

NewTekniques: What kind of responses have you received to PlayableTV?

Stross: The first shows that Playable Television entered, Infocom and SIGGRAPH, the response of people interacting with the product was incredible. People liked playing around with the unit, and some just wanted to try to break the unit, and frustratedly conceded to its robustness. People told us that the TV set made it less intimidating to use. Judging by our evidence of usage the Playable Television system will attract American business to buy units because the solution does not intimidate, alienate, or bore the business executive. In fact, the brass at many huge firms have told us that they love the interface and want to buy units because it is fun to use and easy to comprehend.

NewTekniques: Now for the big question. How much does PlayableTV cost and what does the user or corporation get with the purchase?

Stross: A Playable Television unit is approximately between $20,000 and $25,000. This cost is for a base unit, which includes base hardware, base software, one hour of video, programming and presentation content, and an enclosure for a self-standing unit or construction costs. In other words, this cost provides a base unit with all costs included. Added features can include capability for more video, graphical, or animation content, restricted sound (so only the person or persons using the unit can hear the unit), motion detectors (to call attention to a passerby), credit card readers or custom card readers, statistical feedback including demographic information, remote access for updating, special security devices for high risk areas, a live video feed, strategically placed video cameras, and all the creativity of our team.

NewTekniques: There are many non-linear editing systems on the market today and many debates as to which one is the "best." What, in your opinion, makes the Flyer such a good solution for video producers?

Stross: Referring to the Flyer is like referring to cars. Everyone has a preference for different reasons. The Flyer is as unique to itself as any other non-linear editing system. The fact that the system is open-ended is the one thing I especially appreciate whereas others do not like that part of the system. Everyone has specific needs and the products on the market each can fill one need better than another, although the Flyer covers a wide range of capabilities for the price that other systems in the same price range do not.

NewTekniques: You've been a long-time Toaster and Flyer user in high-end situations. What closing thoughts or tips would you like to pass on to other Toaster/Flyer owners?

Stross: The best advice I can give anyone using the Toaster/Flyer system is to pre-think each project. The Flyer, along with third-party software, can do 95 percent of what an Avid can do if you preplan your project and use the tools available. If you are using an MTV editing style with short edits and want to use effects, the product to use is RenderFX. Between this program and others on the market, your Flyer can be as flexible and easy to use as any other system.

NewTekniques: And any closing thoughts about Playable TV?

Stross: We know that Playable Television will benefit the world around us, making life easier and more fun.

End Note: For more information on PlayableTV, log onto the Web site at www.playabletv.com.

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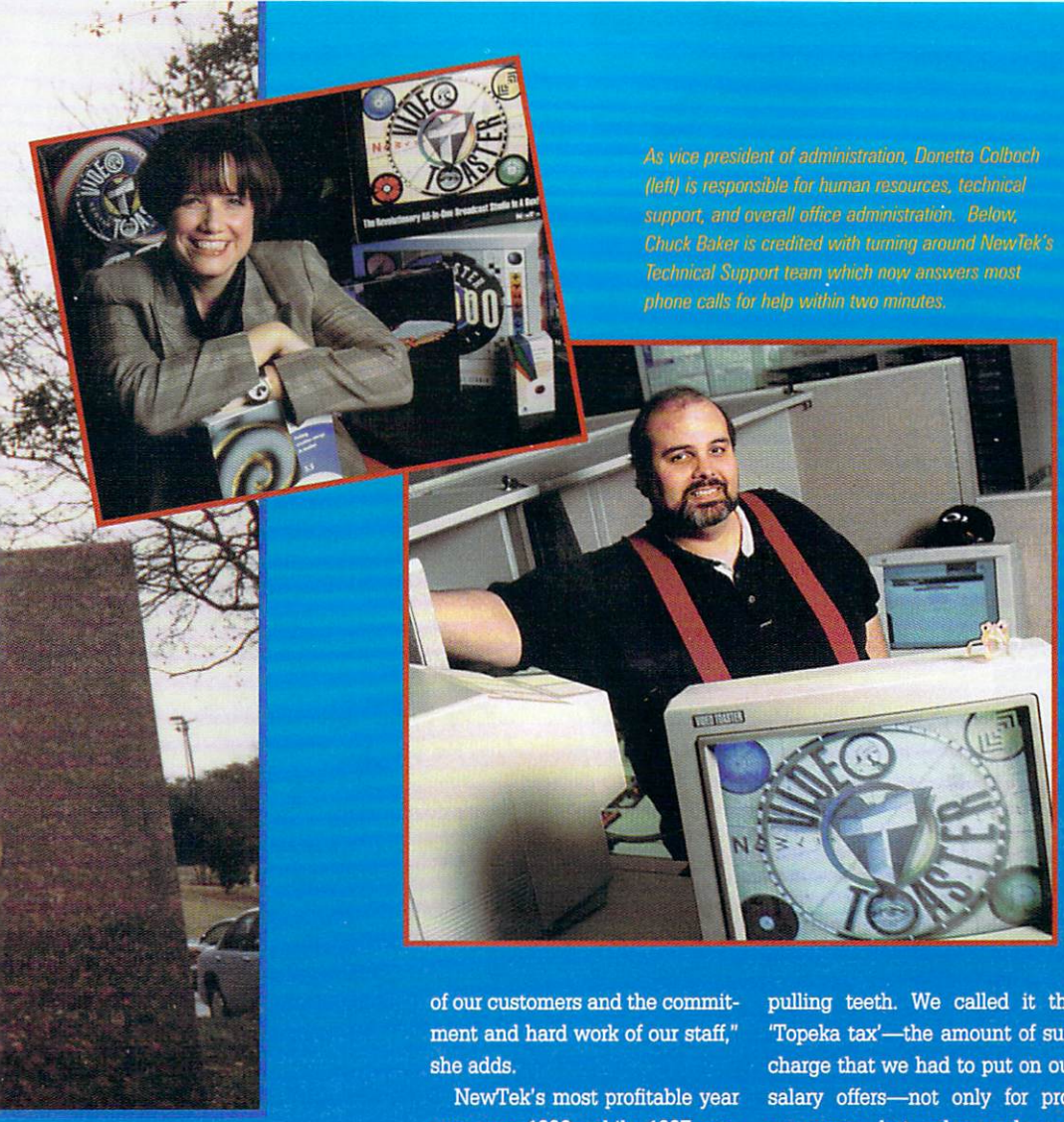
Tim Jenison, NewTek's founder and the brains behind NewTek's Research and Development team, is pictured in front of NewTek's temporary offices. In a couple of years, NewTek plans on moving into a custom-built location on a cliff above the Fiesta Texas amusement park in San Antonio.

Exploring NewTek

Strategic New Directions

BY
DICK DE JONG
AND MOLLY
DINKINS

"You grow or you stagnate," says Tim Jenison, NewTek's founder, about the recent momentous move. Even though youthful high spirits still enliven the halls of their new offices, NewTek is maturing.



As vice president of administration, Donetta Colboch (left) is responsible for human resources, technical support, and overall office administration. Below, Chuck Baker is credited with turning around NewTek's Technical Support team which now answers most phone calls for help within two minutes.

"The company is just starting to leave its rebellious teenage stage," comments CEO Dwight Parscale. Indeed, NewTek is becoming more businesslike.

When Parscale took over the business side of the organization in 1995, "we were hanging on by our fingernails," says Jenison. Parscale applied some old-fashioned belt-tightening and reorganization starting with the accounting department. "I set about creating a business around Tim's technology," Parscale says.

Donetta Colboch, vice president of administration and an eight-year company veteran, explains that Parscale took "diligent people through a methodical change without killing the energy."

"We've survived those times because of the loyalty and support of our customers and the commitment and hard work of our staff," she adds.

NewTek's most profitable year ever was 1996, while 1997 was the largest sales year. In 1998, NewTek's staff and product line will continue to expand. In a few short years, the firm has reinvigorated its spirit while it was reinventing its business. "We're a three-year old company with a 12-year history," Parscale says.

San Antonio Rose

The most visible sign of change at NewTek is the relocation to San Antonio from Topeka, which took place last summer. Many of the principals involved with the company had roots in Topeka, so the decision to move didn't come easily.

As Jenison describes the situation, "When I started the company, it didn't matter if Topeka wasn't a high tech capital. But once we began to recruit, asking people to move to Topeka was like pulling teeth. We called it the 'Topeka tax'—the amount of surcharge that we had to put on our salary offers—not only for programmers, but salespeople and tech support."

Adds Parscale, "The first week in San Antonio, we had more applications than in three years in Topeka. People were soliciting us for jobs."

While still in Topeka, Parscale was searching for office space in San Antonio. His descriptions of the possibilities didn't capture anyone's fancy until he mentioned an office building called the Fountainhead. "A lot of us are Ayn Rand fans. When we heard the name of the building, we knew we had found a home," Colboch says.

Asset Factory

At the NewTek Expo last October, NewTek made a quiet announcement that it was purchasing Asset Factory, a start-up company out of San Francisco that offers a render farm service via the Internet. On the surface, the transaction seemed like an anomaly; but if you look at the acquisition more closely, you see an indication of where NewTek is going and how it's getting there.

Describing the Asset Factory, Jenison says, "I read their business plan and I was impressed. They are trying to build their business based on the idea that the Web is going to improve. I agree with that."

Matt Jefferson from the Asset Factory says, "When Don Smith put the company together, he felt we needed strong partner relationships with software companies. NewTek's technology was the most seamless fit with ours. After some initial discussions, we realized that 1 + 1 = 3."

But there was more to the purchase than just a good fit. "The acquisition made a statement that we are going to be a player in the Internet world," Parscale adds. "And it gave us a quick fix in talent." Among Asset Factory's assets are two engineers who are well-versed in networking and three top-notch salespeople.

Sales and Customer Service

The Asset Factory's sales experts filled a long-standing corporate void: NewTek's Sales division was practically nonexistent. "We've never been good at it," says Jenison. And its Customer Service was often unresponsive. Smith stepped in and took on the task of infusing a structure into the system. "Don Smith has been through it all. He has a great pedigree," Jenison says.

Smith and Jefferson spent the

(continued)

TIM JENISON

Tim Jenison grew up in a farming community north of Ames, IA where his father "stuck out"—he ran an electrical engineering firm. Jenison was an inquisitive child picking up information from anyone who would share it. One of his favorite classrooms was his father's workbench. "I learned on oscilloscopes and tubes," he says.

"I remember sitting on my dad's lap when I was about five or six asking him how a volt meter worked. He proceeded to explain Ohm's Law to me. Some of the information stuck, some didn't."

His music career began at the same time. At age five, he began playing the piano. Jenison tried college for a year, but one can only imagine that it interfered with his education. Ultimately, he left college to play keyboards for an itinerate rock band (our favorite of the band's various names—Mohammed's Radio). Dragging along electronic tools and toys wherever he went, he was always tinkering with the sound equipment.

Another childhood thread that became part of the fabric of his adult life was his interest in film and video. Though television was banished from his house when he was a child, "I was an AV nerd in school." He won a Kodak Teenage Award for an 8mm epic he produced. To this day, "I'm still a frustrated filmmaker."

Then enter the computer. "I was incredibly interested in computers, but nobody had them. Finally, *Popular Mechanics* had instructions for building your own. By 1977, I had built my first one." Convinced of the economic and creative possibilities of this powerful tool, "I dropped everything—eating, sleeping, and even music."

By the late '70's, the four threads of his life—electronics, music, film/video, and computers—became interwoven into his entrepreneurial career as an inventor. He developed a long, rich list of products with great names like Talk Head, CocoMax, and Digi-View. But this is a story for another occasion.

Released in 1986, Digi-View was the first NewTek product. With the profits, Jenison set out to build the Video Toaster, which debuted in 1990. "I designed the thing because I wanted it."

The revolution began and the rest, as they say, is history.

Jenison admits, "I'm still a frustrated filmmaker." Perhaps the realities of his research and development work will change that.

first two weeks on the job dissecting the customer service process. They then implemented new procedures and a new decision-making process.

"We're taking a professional, responsive, high-technology approach to handling customers," Jefferson says. "All the newly hired customer service representatives attend an in-depth, 20-hour training course on the history of NewTek, the technology, and customer service skills."

"And we've made a commitment to resolve all customer service issues within 48 hours. To accomplish that, all issues have to roll up to sales management within 24 hours," Jefferson says.

Not only did NewTek acquire a company that fits into NewTek's philosophy, it also inherited a highly qualified and experienced staff that already has had an impact on NewTek in the two months they've been on board.

And according to Parscale, future acquisitions are under consideration.

Technical Support

Technical Support is a frontline operation. A lot of customers have come to know NewTek through their conversations with the Tech Support staff. Chuck Baker is the guiding light of Technical Support. His soft-spoken but passionate concern for the customer imbues the day-to-day operations.

In the lean days, Technical Support was undermanned and woefully equipped. They lost a couple of people who didn't make the move from Topeka, and recently, another to Digital Domain. But with a new round of hiring, the staff is up to 10 (the most ever) with Michael Ash being promoted to Assistant Manager. Another sign of upper management's commitment to quality tech support is that the staff now has computers for all platforms: Amiga, Intel, DEC, Mac, Sun, and SGI.

The real symbol of change in Technical Support, however, is the phone system. When you call, you're placed in a queue. Each staff member has a phone that indicates if anyone is in the queue. If the light on the phone is solid, the caller has been there less than a minute. If it's blinking, the person has been waiting over two minutes. The phone in Baker's office not only shows the queue but also allows him to check how many lines are being answered. His goal is to never see a blinking light. Ideally, no one will have to wait in the queue for longer than two minutes.

A short wait is one thing; an informed answer is another challenge. One of the problems with personnel turnover is when you lose people, you lose your knowledge base. So an ongoing database is kept of answers to the most commonly asked questions. Results of these can end up on the NewTek Web site in the form of user FAQ's to solve problems.

Looking into the near future, Baker foresees establishing a 24-hour support service that will be a boon to nocturnal animators. But, with the spread of NewTek customers worldwide, the main impetus for around-the-clock service is to support clients in every time zone. Along those international lines, Baker hopes to implement Spanish lessons for his staff.

NewTek is also studying the possibility of licensing software that would allow Technical Support staff to remotely access a caller's

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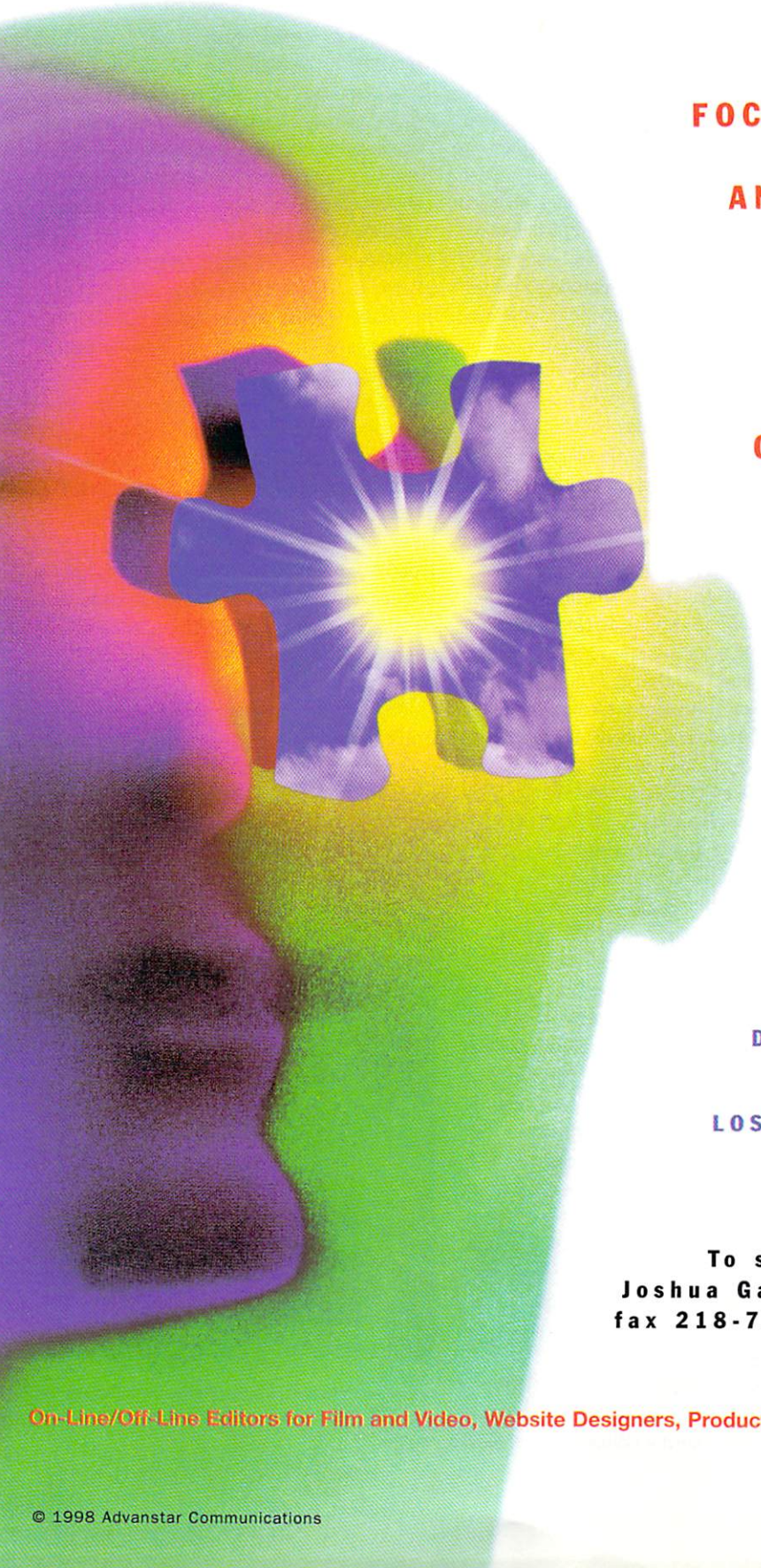

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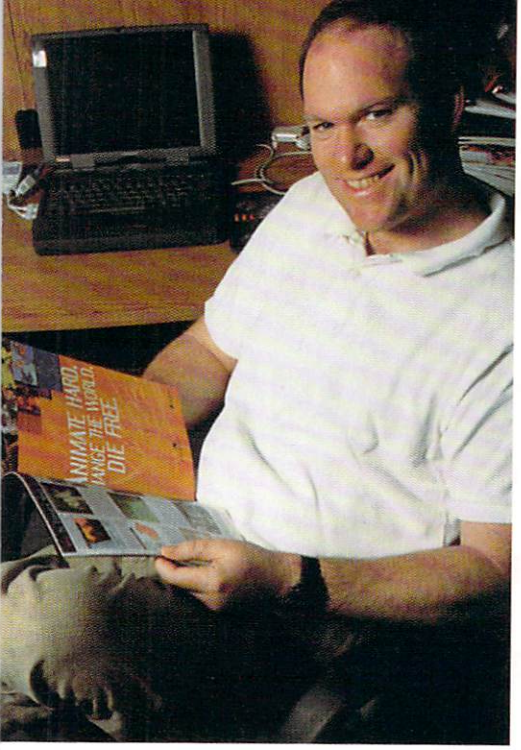


According to Steve Herrmann (above), NewTek is advertising in 10 to 15 different magazines a month.

computer so they can better analyze the problems.

With all these expanded plans comes the specter of charging for technical support. NewTek realizes that this may cause a minor firestorm of protest so it is analyzing the possibilities in detail. "We are looking at Technical Support just like any other product we offer. If we do charge for it [and that hasn't been decided] we know that we will have to give high value for the cost," says Colboch.

Education

The NewTek training room is filled with howling employees watching a wrestling match on tape between Victor, an eight-foot-tall, 600-pound bear and a scrappy young man who is scrambling on hands and knees under the beast's belly. He grabs a hind leg and flips the bear for a takedown. "Now, watch!" warns Pat Grogan, NewTek's Director of Education and Training. "This is where he breaks my nose."

For the first time, NewTek is organizing an educational outreach program and Grogan, an 18-year veteran educator from Washburn University, was selected to take the helm. Grogan was the perfect choice to head this new division—he's a man who relishes tackling a challenge. As a Director of Washburn's Educational Media Lab, he established NewTek's first instructional laboratory at a university and helped developed academic courses on the use of NewTek products.

Currently he is working with San Antonio Community College to establish another lab. This type of Academic Partner Program is only one of NewTek's three educational projects.

Grogan is also developing authorized, non-academic, NewTek training centers throughout the country. Thirteen potential training sites have been identified where certification for proficiency in LightWave Modeler and Layout will be offered in one- to four-day courses. Future plans include training centers abroad—in Europe, Asia, and Australia. Grogan also anticipates offering traveling instructional seminars and adventure training programs where one parent may take courses on a cruise or at a holiday hot spot while the family enjoys a vacation. Specialized courses (such as medical, forensic, or character animation) also might evolve as part of the program.

Dealer and Key Account training—the third project and the only pre-Grogan program—continues at the training center in San Antonio and will expand as NewTek's products become more widespread.

Don Ballance and Don Pence, NewTek's "demo jocks," complete the education team. They perform demonstrations at professional conferences and trade shows, as well as conduct in-house orientation and training. They also prepare educational programs for new products before they hit the streets.

Finally, Grogan's department can be considered an impromptu public relations arm of the company. A confusing local TV story about NewTek's move to San Antonio included a call for applicants to fill 50 jobs and a promise of $60,000 starting pay. Grogan was given the task of explaining to up to 45 callers a day that $60,000 might be entry level pay for some Hollywood animators, but it was not for NewTek employees. Grogan graciously handled the calls because he remembers how hard it was for him to sometimes get through to a NewTek employee. He wants to break NewTek's incommunicado reputation, and he states that one of his goals is "to answer every email and every phone call."

Marketing

The high-kicking Kiki era of marketing is over at NewTek. "It worked," comments former Marketing Director Colboch of their flamboyant road show at the then ho-hum NAB conferences.

But today, Steve Herrmann, NewTek's current Director of Marketing, has shifted the focus to a more systematic approach. "Before, typically, we had a real top-down approach to development and marketing. Now, we're doing our homework. We're analyzing the needs of the markets, whether pro or prosumer or consumer," he says.

"We're trying to work with R&D to test new product features as they are developed, within the limitations of secrecy. We've conducted focus groups and surveys. We've even test-marketed names for new products."

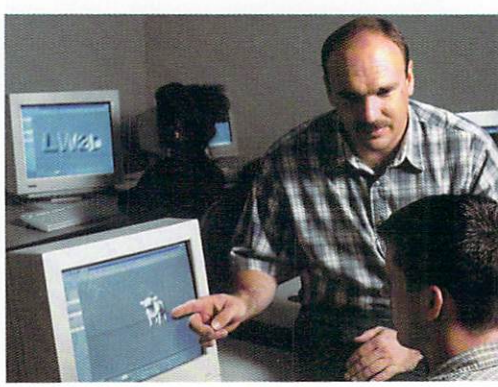
Occasionally, the process reverts to the old ways. As Colboch relates, "One day the product team handed us Calibar and said, 'Here it is, go sell it.'" But such relapses are rare these days.

On other fronts, in 1997, NewTek participated in 24 trade shows usually displaying both LightWave and Toaster/Flyer products. "We also advertised in 10 to 15 magazines a month," Herrmann says. "We are also becoming much more proactive in our public relations efforts.

"And we are constantly refining our marketing by testing which strategies are successful and which publications generate the most response."

Research & Development

NewTek supports two research and development efforts. The LightWave team is located in San Francisco. The rest of R&D operates on the company's mysterious sixth floor in San Antonio.



When he's not wrestling bears, Pat Grogan is heading NewTek's education and training program.

"A third of our staff is involved in R&D and we're committing more resources to it than we ever have," says Colboch. Ask for more than that, and the veil is thrown over the topic. "Those are Tim's secrets. If he wants you to know, he'll tell you," Colboch adds.

"I'd like to show you around. But," as Jenison gestures to no one in particular, "most people in the company have never been down there." Area 51 would be easier to penetrate.

In fact, it's a company joke that neither the researchers nor the floor really exist. No one talks about the hocus pocus that goes on; but the consensus is that if you can imagine a revolutionary product, Jenison has already explored the possibilities—and may even be working on its production.

What whispers we do hear emanating from R&D speak of exciting progress and amazing products. "We're working on technology that is years into the future," says Harold Russell, Product Manager for Research and Development. But NewTek remains adamant about their "zipped lips until we're ready to ship" policy.

Both Jenison and Parscale do not like the industry standard of announcing a product long before it's ready to sell. "A lot of companies practice the policy of 'fear, uncertainty, and doubt.' We did that with 3.0 LightWave. We're out of that game now," Jenison says.

One of the problems of trying to predict when a product will be completed lies in the nature of software development. Jenison talks about the process: "It's black magic. I've heard someone describe it as trying to nail Jell-O to the wall. It's frustrating, but you can't force invention."

We do know that Jenison had to interrupt our interview to meet with his "attorney about a patent." Now, could somebody convince Jenison's magician friends, Penn and Teller, to perform "the invisible man" act and find out what's really going on in NewTek's Research and Development labs?

LightWave 3D

When NewTek moved to San Antonio, the LightWave team consolidated in San Francisco. Allen Hastings and Stuart Ferguson, the original LightWave developers, never did abandon the Bay area for the joys of Topeka. "That issue was settled a long time ago," says Ferguson. Brad Peebler, LightWave's Product Manager, did relocate from the Kansas capitol.

Since last August, Peebler has been busy renovating part of an old club, appropriately dubbed DV8, into new offices. He describes the facilities: "It was a quad-level club. I think our floor was the 'Bondage-Room.' Some of the offices are old DJ booths and we had them leave the metal dance floor." The 15-member LightWave group shares the 4,000-square-foot space with the Asset Factory and its render farm of almost 100 Pentium II and DEC Alpha processors.

"The distance from San Antonio allows us to maintain a start-up company feel to the office," says Peebler. He admits, though, that it's great having the corporate support. "You need to give developers a lot of freedom. They're like artists—you can't restrict them to normal confines. You have to allow them to color outside the lines."

The left coast location keeps the development team close to many of the key accounts at Hollywood visual effects studios and Bay Area gaming companies. "Projects like *Titanic* push the envelope for LightWave development," says Peebler, who quickly adds, "[but] we listen to everyone, whether it's one guy in Florida or 15 in L.A."

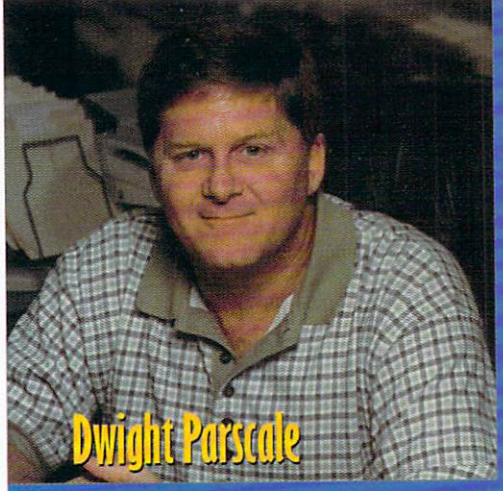
As for the future of LightWave, "We want to take over the world," Ferguson jokes. Keeping within the restraints of not talking in detail about unreleased products, Ferguson adds, "We are constantly making things easier. The program is on solid technical ground.

"I'm very excited about the next version, code named 'Purple.' It's a leap beyond where we've been in the past in functionality and ease of use. There are some interesting technical areas that we hadn't delved into before because of the elaborate nature of interactivity. We're solving some of those problems."

To add to the power of LightWave, NewTek is hiring experts in arcane fields of 3D design. Ferguson says, "There's no real limit to LightWave."

If Ferguson is right, then he should realize one of his goals in the near future. "I would love to see the core LightWave community start winning Oscars."

That's a refrain sung by the whole NewTek community, coast to coast, and continent to continent.



Dwight Parscale

Dwight Parscale grew up near the water. His father was in the submarine service, so Parscale was a Navy brat traveling along the East Coast and experiencing history firsthand. "I was in Key West when Castro was overthrowing Batista in Cuba. And when we lived in Charleston, South Carolina, I was watching from across the street during the first sit-in." Life slowed when his father took the family and retired to Salina, KS.

Parscale received his law degree from Washburn University in Topeka and worked for four years as an Assistant Attorney General for Kansas. He tired of the law and started to run a range of businesses, from a scuba shop to a nightclub. "I've always enjoyed running businesses and turning them around."

Jenison helped Parscale set up a video system in his club and they became friends. In the pre-NewTek days, Parscale helped Jenison negotiate contracts with Colorware, the firm for which he designed Cocomax.

In 1986, Parscale drew up the incorporation papers for NewTek. "We figured out the name NewTek and the spelling. Tim worked off his bill by doing work for me. After that I started another project and sent Tim on his way with another attorney.

"He would call me occasionally to come by and see something cool. I had no idea what I was looking at," he laughs.

Jenison picks up the story late in 1994. By then Parscale was semi-retired. "Dwight calls me and wants to do lunch. He said that he's bored out of his gourd, his kids are gone, and he's looking for some part-time work where he can leave and go golfing at 3:00. After about a month, he came into my office and said to me, 'You don't like being CEO. You're not good at it and I think I can do it better. I'll be CEO. You need to be back developing products.'"

Parscale says, "It's a good partnership. We work well together. Tim's the Number 1 genius in the world at what he does."

INNOVATIVE LIGHTWAVE 3D APPLICATIONS FROM OUR LIGHTWAVE MUSE

WAVES

A look into the structure of Digital Muse

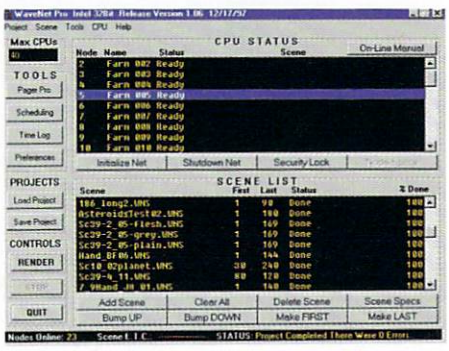
The Structure of Digital Muse

MAXIMIZING EFFICIENCY

BY JOHN GROSS

In my last column, I talked about Content Directory structure. I also mentioned that I would discuss Digital Muse's structure so you can get a feel for how a working facility is organized. True to my word, this month I will discuss that very subject. Let's start with the hardware.

Digital Muse Content Directory.



WaveNet Pro

Digital Muse's server consists of a number of 9GB drives controlled by a hardware RAID controller. Currently Digital Muse has about 130GB hard drive space online with more slated to be added. All that space (not much for film work) is split up into a number of "drives" that are seen by all of the computers on the network (40 or so Alphas, PCs, and Macs). The Z drive contains all of the content data (objects, images, scenes, etc.). The S drive contains all of the software. The H, I, and J drives are for plates. And finally, the R, U, and V drives are for final rendered frames.

To make sure that all of the machines are mapped to all of the drives properly (if not, you will curse yourself when trying to render frames), every time a machine is booted, a login script runs and maps the shared network drives to the proper letters. Everything is run using Windows NT as the network environment, and it all works quite well.

LightWave and Modeler are not installed on every machine, but rather are run from the shared software drive. To insure that every artist has his or her own config file, each artist is mapped to a drive letter (T) that is a different shared directory on the server. Each artist's T directory contains his or her own config files and, therefore, the config files are not shared by everybody running the software (which would be disastrous, especially in the case of Modeler). To insure that Layout and Modeler can find the proper config files, each artist's Layout and Modeler shortcut has its working directory set to T:/.

Every person at Digital Muse has his or her own login name and password. In the morning when people come in, they log on using their user name and password. When they leave for the day (if they leave), they log off. There is an additional account set up called "Slave" that everybody knows the password to, which has restricted access. When people leave for the day, they log on as Slave, which adds the machine to the list of available machines for distributed rendering. All of the machines in the farm room are always rendering, and artist machines are rendering when people aren't using them. I'm a firm believer that there should never be an idle machine. They should always be rendering something or in use by somebody. That's their job.

There are basically three choices (currently) for distributed rendering control: LightWave's ScreamerNet, ATR Solution's WaveNet, or a custom-built render controller. ScreamerNet works well but has a number of disadvantages. The biggest is that you cannot add extra nodes or scenes to the list until rendering is completed. Allen Hastings was (and is)

totally aware of the cons of using ScreamerNet, but fully intended others to build ScreamerNet controllers and opened up the software enough to do so. One of the companies that stepped up to the challenge was ATR. Its product, WaveNet, is a good example of a third-party SN controller. A few other facilities have developed custom controllers, but we've found that ATR's WaveNet is a pretty good product and have been using it for awhile.

The advantages to using WaveNet far outweigh LightWave's built-in ScreamerNet and the features it lacks are currently in the works. The two main advantages are that you can add or take away nodes at any time and add additional scenes to the render queue. Add in dropped frame scanning, paging alerts, and render logging and you can see why WaveNet is in use by a number of LightWave facilities that have more than a few machines.

Now for the Content Directory structure. In the beginning, we used to have separate content directories for separate projects. I always preferred this method because it kept the structure more organized and allowed for easy archiving and removing. However, it became a hassle using this structure with WaveNet because WaveNet only allows for one content directory to be used at one time. What happens when we have two clients' projects that need to be rendered in the same night? Somebody could come in when the first project is finished rendering (WaveNet will page you...), shut down all of the nodes and reassign the Content Directory, then restart all of the nodes and add the second client's project. Or you could create one giant content directory and keep all of the projects "together" and, therefore, render anything at anytime.

It soon became such a pain to have to keep shutting down the farm and reassigning the Content Directory that we decided to move everything into one big Content Directory. So we switched over. I didn't really want to do this, but we had to. Now that we have, ATR is working on a new version of WaveNet that will allow for different content directories. Once this version is up and running, I think we might switch back. We'll have to see how big a hassle it will be at the time.

In the early days of Digital Muse, we had a content structure located on the Z drive that read something like this:

DS9
- Envelopes
- Images
- Motions
- Objects
- Previews
- Scenes
- Surfaces

Voyager
- Envelopes
- Images
- Motions
- Objects
- Previews
- Scenes
- Surfaces

Sliders
- Envelopes
- Images
- Motions
- Objects
- Previews
- Scenes
- Surfaces

Etc.

When an artist needed to work on one of these different projects, he or she set the Content Directory value (Options panel) to Z:\DS9 or Z:\Voyager. Additionally, when scenes for these projects were rendered, WaveNet nodes, upon starting, saw a config file whose Content Directory path was set to the appropriate directory and later changed.

After it was determined that this was too big of a hassle, we decided to put everything under one big content structure. This played havoc with previously set-up scenes, as we had to reassign a lot of things and resave objects, but nothing worthwhile comes easy and in the long run, we benefited from doing it. The new structure looks like this:

Envelopes
- DS9
- Voyager
- Sliders

Images
- DS9
- Voyager
- Sliders

Motions
- DS9
- Voyager
- Sliders

Objects
- DS9
- Voyager
- Sliders

Previews
- DS9
- Voyager
- Sliders

Scenes
- DS9
- Voyager
- Sliders

Surfaces
- DS9
- Voyager
- Sliders

As you can see, in each main Content Directory (Images, Motions, etc.) there exists a directory for the appropriate items for each specific project. While complicating matters for archiving specific projects and removing them, it makes rendering much easier. For instance, since we no longer do effects work for "Sliders," we could have (previously) backed up the "Sliders" Content Directory and then removed it. Now we would have to go into each of the Content Directories (Images, Motions, etc.), backup the "Sliders" directories and then remove each of those directories. Also, let's say we wanted to put the "Sliders" content on a removable drive and take it somewhere else. Before the separation, it would be an easy task. After combining all of the content, it becomes a bit more daunting. An additional plus is that artists never need to switch their content directories (but let's hope they know how to if they have to in the future!)

John Gross is co-owner of Digital Muse, a Santa Monica, CA-based effects facility. Send email to john@dmuse.com.

FlyingHigh

TIPS, TECHNIQUES, TUTORIALS, AND SHORTCUTS FOR YOUR VIDEO TOASTER FLYER PROJECTS

BY JOE TRACY

ToasterPaint Rubthru

CREATES THE CARS

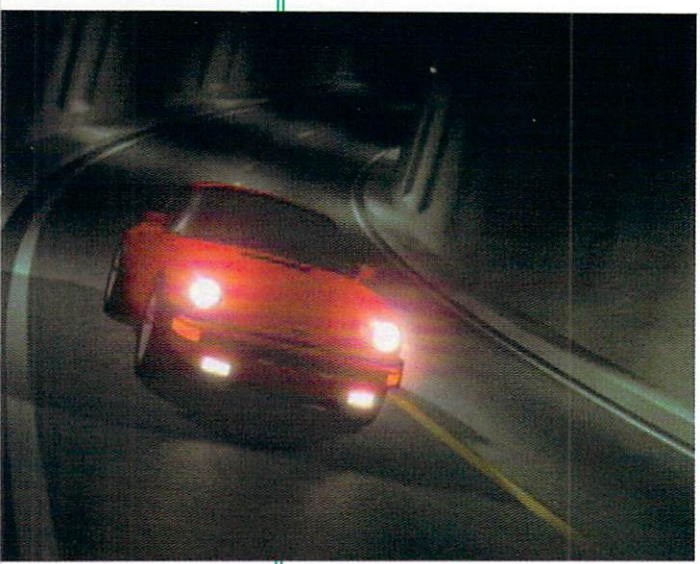


Figure 1

Congratulations! You have been hired by the editors of *CARS* magazine to create a video about their publication. One thing they have asked for is a simple, but effective, introduction title graphic. They want this graphic to open the video and have only the word *CARS* on it. The font for the logo on the magazine is Front Page Bold and they want you to match it. Are you up to the challenge?

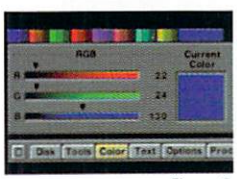


Figure 2

STEP 1: Load up your Toaster/Flyer software. Go to Project/Files view.

STEP 2: Navigate to your Framestore directory. To get there, click on the NewTek tab once, then double-click on the Framestore folder.

STEP 3: Double-click on the LightWaveDemo folder. This folder was added when you installed your Flyer 4.2 software. It contains various demonstrations of LightWave scenes. You're interested in the one that contains the car. It is called Tunnel. Find it and double-click on it to display it. It should look like Figure 1.

This is the image that you want to use to help create your *CARS* introduction screen. Now that you've seen what it looks like, it's time to start working on it!

STEP 4: Enter ToasterPaint by selecting it from the Programs directory on your middle menu bar.

STEP 5: From the lower menu select Color. Now change your RGB sliders so that they say Red (R) = 22, Green (G) = 24, and Blue (B) = 130. It should look like Figure 2.

STEP 6: On the right side of the screen, under Range Color, click on the button that says Center. The color just to the left of it will change to the same color in your Current Color box.

STEP 7: Go back to your RGB sliders and change Blue (B) so that it equals 192. Your values should now read R = 22, G = 24, B = 192. Now go back to the Range Color area and click on the button that says Edge. Your Range Color area should now look like Figure 3.

STEP 8: From the bottom menu, select Tools. In the Scroll-down box above Draw Mode, select Range (Figure 4).

STEP 9: Above Draw Mode and slightly to the left is a button that says Flood Fill (also showing in Figure 4). Click it so that it is highlighted. Now move your cursor to the black area of the screen and click it once. A nice blue gradient will fill the screen!

STEP 10: In the lower menu, you will see two buttons with numbers in them. There are a 1

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JOE TRACY'S

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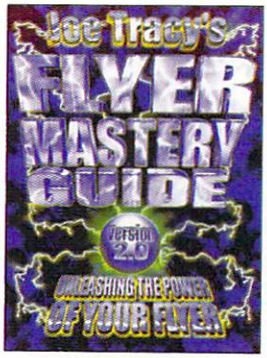

Some dealers are now bundling this book with new Video Toaster Flyer systems.

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Dave Jones of Dave Jones Productions

"I thought I knew a lot about the Toaster Flyer. I can't believe how little I knew. Should be called the Flyer's Bible!"

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"Without a doubt, Joe Tracy's Flyer Mastery Guide is the single most effective, informative, biggest bang for the buck item I have purchased since beginning video productions/editing 10 years ago."

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Figure 3

Figure 5

Figure 4

and a 2. These represent two separate screens that you can work with inside ToasterPaint. The 1 is currently highlighted (yellow). Click the 2. Your blue screen will disappear (don't worry, it's still on screen 1).

STEP 11: Remember the Tunnel image we saw earlier? You now want to load it onto this black screen. From the bottom menu, select Disk.

STEP 12: Under the Load area, select Framestore. You want to navigate to the area that had the Tunnel image on it. In white letters you should see LightWaveDemo listed. Click it once. Find the name Tunnel (you may need to scroll down) and click on it twice. It will load onto the second screen!

STEP 13: Return to the first screen by selecting 1 from the lower menu. Your blue screen should reappear. Now select Text from the lower menu.

STEP 14: In the upper left side of this menu is a button that says Load Font. Click it once. There should be, in white letters (signifying a directory), the name SoftMaker. Click it once. Now find the font Front Page Bold (remember, they wanted this font to match their magazine logo) and double-click on it. You should be returned to the Text screen. The font is loaded.

STEP 15: Place your cursor in the box to the right of Text and type in the word *CARS* using all capital letters. Under your text, you will see the title Height with a small button just to the right of

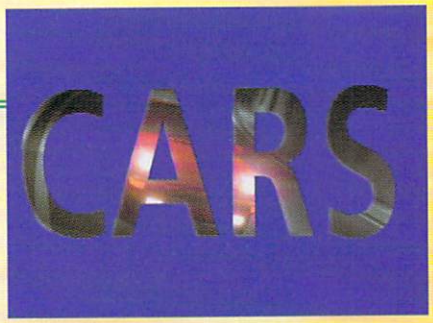


Figure 6

it (with double arrows). Hold down your cursor over this box and drag your mouse to the right and left. See the numbers increasing and decreasing? Drag your mouse all the way to the right until it reads 300. Let go.

STEP 16: To the right of that is Width. Hold down your cursor on the button to the right of Width and drag it to the left until it reaches -5 (negative five). Let go. Your screen should look like Figure 5.

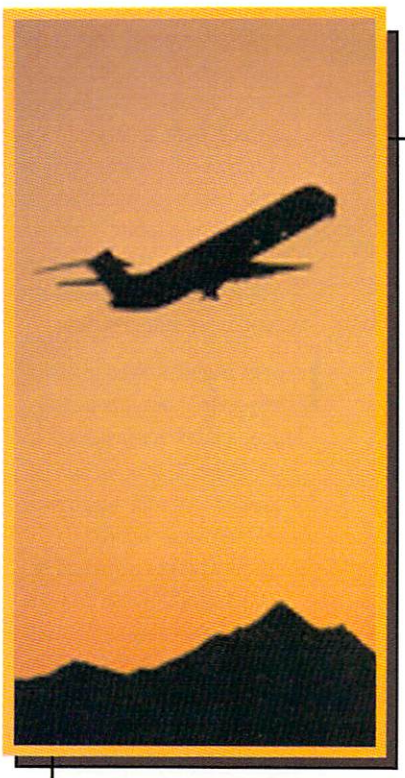
STEP 17: Click the Create Brush button. *CARS* in huge letters will appear attached to your cursor and your menu will disappear. On your keyboard, hit the Esc key to bring back your menu.

STEP 18: From the bottom menu, select Tools. Just above Draw Mode, change it from Range to Rubthru. Hit the Esc key to make your menu disappear. Now center your *CARS* brush on the screen, then click once. The image on screen 2 will fill in the text area! Hit the Esc key to bring back your menu. From the bottom menu, select the button with the Clapboard in it to render this picture and see the results on your Program monitor. It should look like Figure 6.

Congratulations -- your mission is accomplished! Now you can turn this screen and the Tunnel image into Flyer stills and start experimenting with them in a project (Figure 7). When your video wins an Emmy, be sure to send me an autographed picture of you holding the statue.

Figure 7

Joe Tracy is editor-in-chief of NewTekniques *and can be reached via jtracy@main.rosenet.net. He is also author of the* Flyer Mastery Guide - Version 2.0.



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Circle Number 213

LightWave 201

A UNIVERSITY-LEVEL COURSE WITH INCREASINGLY DIFFICULT LIGHTWAVE TECHNIQUES

BY SCOTT WHEELER

Project Bird:

FLY BIRDIE FLY!

The second installment in the second level of LightWave courses —"LightWave 201."

For this month's course installment we are going make the bird we created in the last issue fly. This will be our first step into the world of bones in LightWave 3D's Layout. Although we will be using them in their most basic form, this will give us a starting point for when we get more complicated in the future.

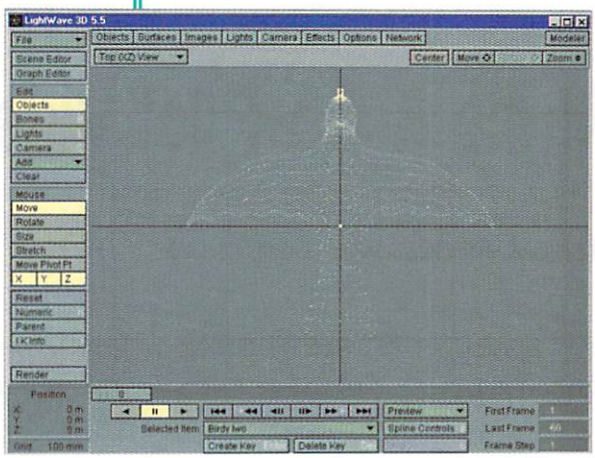

Figure 1

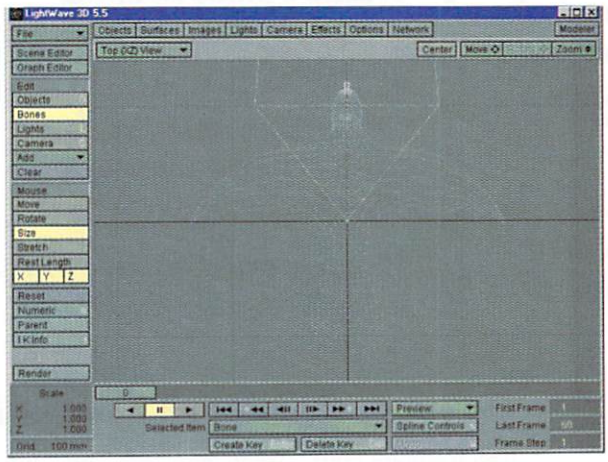

Figure 2

1. Open Layout and load the bird object we created in the last issue of *NewTekniques*.

   Before we move deeper, let's do a little housekeeping. In order to make the feedback of Layout as fast as possible and allow us to see the bones inside the bird, we'll change our object so that we only view it as points.

2. Open the Scene Editor panel and click on the Show button in the top left corner. Drag down to Show All Objects as Points Only and release. With no polygons displayed we can view straight through the object from all angles. Select Top View [2] and zoom in [.] until your bird fills the window. Your screen should look like Figure 1.

   For our bird to flap we need to add some bones to deform the wings. One thing to remember about bones is that they will exert some force on a large area of the object. Therefore, you need to add anchor bones to the areas you do not wish to distort. This will become clearer once we add the beginning of the skeleton to our bird. I mention it now in case you experiment a little and get what seems to be a really strange result.

3. Shift b activates bone mode and shift = or numeric keypad + adds our first bone to the object. If you are still zoomed in on the bird you will see a highlighted V shape with the open end at the head of the object and a series of lines extending off the top of the screen (Figure 2). This is our first bone. It's a little large so we need to scale it down a touch. We do this by selecting Rest Length and not Size or Stretch. The reason for this is that Rest Length sets the size of the

bone you want to use in your object while Size/Stretch will deform the model by a factor of how you change the bones size. To see this in action, Size the bone down to X: 0.12, Y: 0.12, Z:0.12 and activate the bone by hitting the R key. What you will notice is that the bone has affected the whole object, scaling it down 0.12 of its former size. Don't panic though, since we haven't set a key frame so we can return to normal size by jiggling the frames ahead [right arrow] and then back [left arrow] and then deactivating the bone [Ctrl–R]. If you did set a key frame just remove the bone [-] from the scene and then add again one [Shift = or numeric keypad +]. We should all be back to Figure 2.

4. After selecting Rest Length change the value [N] to (.04). We need to move our first bone into position, so drag it along with the mouse until it's at X: -14.5mm, Y: -5mm, Z: 61mm. In order to set the Y value you will need to change the view to the Front (XY) view [1]. Just make sure you return to the Top (XZ) view [2] when you have finished. You could also just enter in the numeric value [N] but that would make your mouse lonely so we won't do that. It's also good to get used to moving things around this way since for the most part you won't really be entering in numbers when you animate. Rotate your bone -99.30 degrees on the heading to line it up with the leading edge of the wing and set a key frame at 0 [Return]. Your screen should now look like Figure 3.

5. Now would be a good time to save our scene [Shift-S]. Ultimately we will be using this scene to build a flock of birds with Particle Storm. For this reason, we'll call our scene "BirdFlapping_Base" since it will be our foundation bird for building a flock.

6. To finish adding bones to the wing we need to add two child bones [=]. Notice how they add themselves like a chain to the first bone. The three are now connected so that when you move the first bone the others follow and when you move the second bone the third follows. Now we need to rotate them into position so that all the bones are just inside the leading edge of the wing (Figure 4). To do this it will be easier to constrain the rotation of the bones on just the Heading so we don't inadvertently add pitch or bank to the mix.

7. When you are satisfied with the bone orientations, make a key frame for them at 0 [Return] and set their rest positions [R]. If you set them to rest out of order the object will get a little weird but when all are at rest things will get back to normal.

8. Boning the right wing will be easier since we know our bird is symmetrical. Repeat the steps we went through to add bones to the left wing, keeping in mind that the rest lengths should all be the same as the first wing and only the Heading and X axis numbers need to be inverted. Your finished wings should look like Figure 5.

9. To finish the skeleton we need to add one more bone to the body [Shift = or numeric keypad +]. This will help in anchoring the main body of the bird so that it doesn't get too distorted during the wing flapping. This will not, however, remove all of the distortion since a little body, tail, and head-bob will help add a life to the motion, and since the bones give it to us for free we can't complain. Set the Rest Length to .140 and the location to X: 0m, Y: -4.5mm, Z: -27mm, rest [R] the bone, and create a key frame [Return].

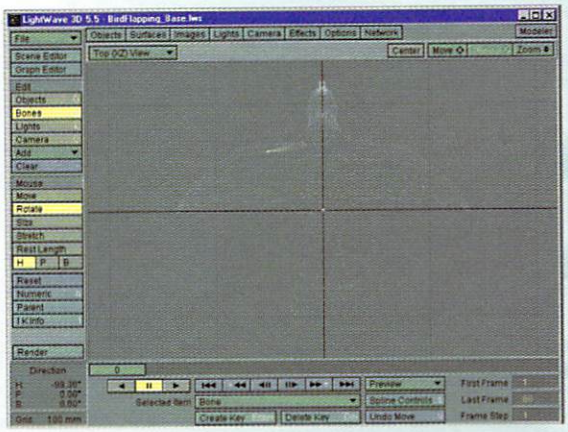

Figure 3

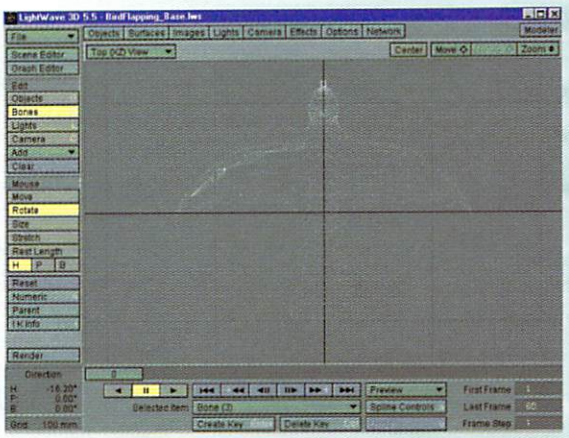

Figure 4

All right, it's flap time! For the adventurous among you I have provided Figure 6, which shows the wing positions in the eight frame flap loop we are about to create. I challenge you to try your hand at making the same sequence on your own. The rest of us will continue on with the tutorial secure in the knowledge we could do it if we had. We just want to see how I'm gonna get us there.

10. Set your view to Front (XY) [1] and select Bone 1. Type the following numbers into the Pitch field in the frame order listed below.

Bone 1 Pitch Rotation

Frame	Pitch
0	-26.78
1	7.60
2	22.9
3	–17.38
4	–34.68
5	–34.68
6	–43
7	–23
8	3.82

11. Repeat the process for Bone 2.

Bone 2 Pitch Rotation

Frame	Pitch
0	12.95
1	22.3
2	27.4
3	37.15
4	42.55
5	31.35
6	13.05
7	–10
8	13.95

12. And the same for Bone 3.

Bone 3 Pitch Rotation

Frame	Pitch
0	1.98
1	9
2	22.4
3	33.68
4	41.28
5	12.88
6	–2.12
7	1.98
8	-5

It would be a major pain to go through and copy these values into the other bones, so we're going to use the magic of the Graph Editor to do the work for us.

13. Reselect Bone 1 and open the Graph Editor [m]. We want our wings to keep flapping continuously, so set the End Behavior to Repeat. Save the motion for Bone 1 as "Bone1" and close the Graph Editor [p].

14. If you added the bones in the correct order the first bone in the right wing should be Bone 4. Open the Graph Editor for Bone 4 [M] and Load in the "Bone1" motion file. The motions for the two bones are now identical. Close the Graph Editor [P] and take a look at the bird. Notice that the bones have now flipped over to the other side of the object, putting our feathered friend into a rather uncomfortable position. To help him out, open the Graph Editor [M] again. We need to invert the X Position of Bone 4. The Graph Editor defaults to X Position so we don't need to change that. Open the Scale Keys requestor and enter in -1.0 for Scale Value by. Next we need to invert the Heading Angle. Click on the X Position pop-up and drag down to Heading Angle and release. Open Scale Keys again and enter another -1.0 for Scale Value by. The last step in the transposition is to make sure End Behavior is set to repeat and close the Graph Editor [P].

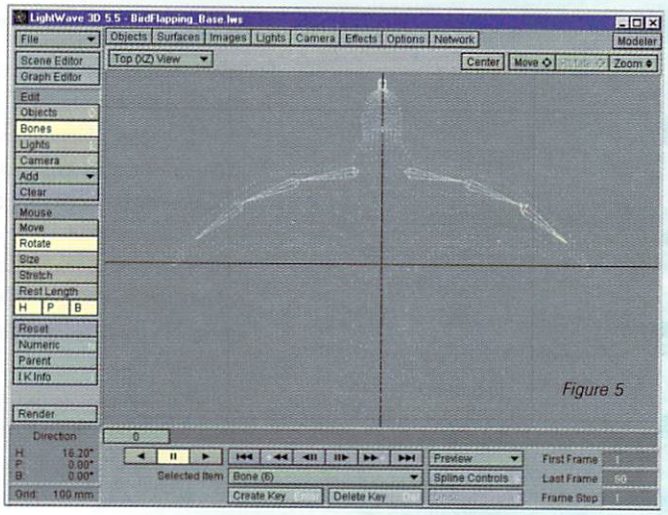

Figure 5

15. If you shuttle through the frames now you should see Bone 4 following the same motion as Bone 1, just inverted. Complete the flap cycle by transposing the other bone motions. (i.e., Bone 2 to Bone 5 and Bone 3 to Bone 6).

You now have a happy flapping bird! Save this scene, we will need it to make a flock of birds in the future to finish off our project.

As for next article, now is the time to go out and get VertiLectric. We will be using it to make a log hut that our birds will eventually flock to. Till then have fun with you new bird, remember to feed him and let him out now and again to fly around. As always feel free to write me at uberscott@uberfx.com. I look forward to hearing from you.

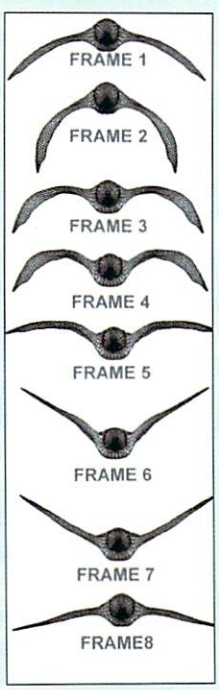

Figure 6

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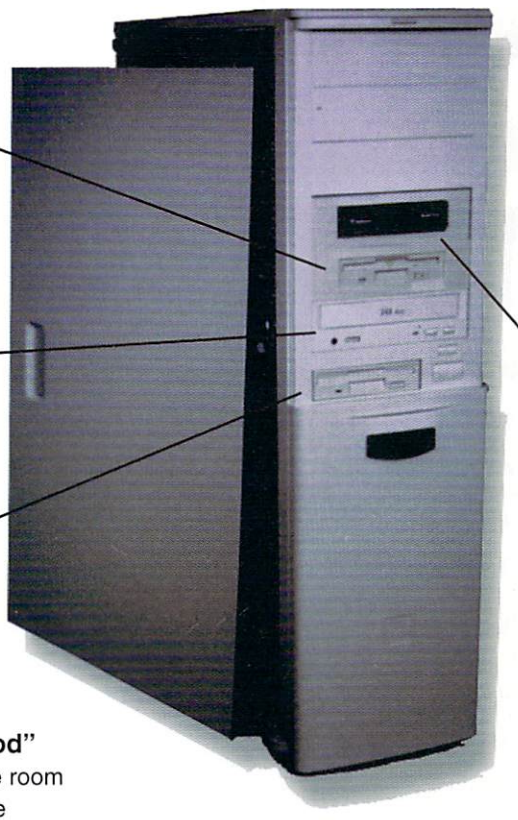

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Circle #214

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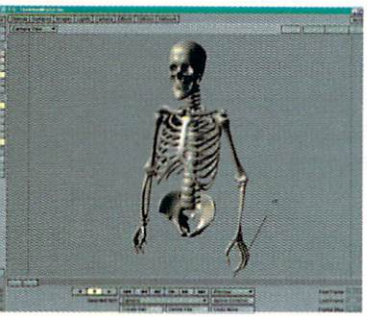
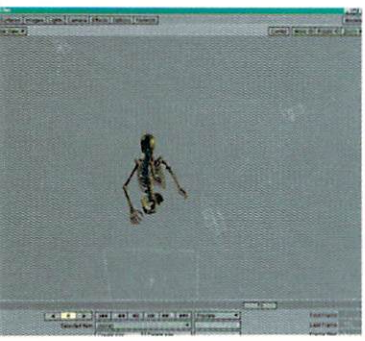
Bringing the *Wishmaster* skeleton to life in LightWave 3D

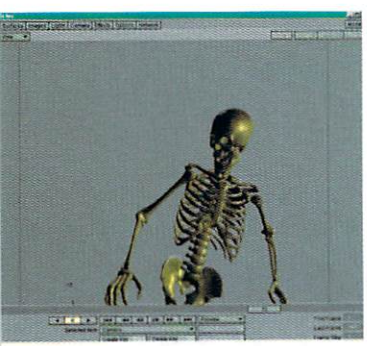
The Wishmaster Skeleton

MY TRIBUTE TO RAY HARRYHAUSEN

BY TOM WILLIAMSON







Above: Because this was a waist-up shot, there was no need to load the legs of the skeleton.

I don't think there's an animator alive who hasn't been affected by the work of Ray Harryhausen. Who can forget the classic images of *Mighty Joe Young*, the Cyclops from *The Seventh Voyage of Sinbad*, Medusa from *Clash of the Titans*, or my personal favorite, the skeletons from *Jason and the Argonauts*. If you love animation or just love movies, you've been entertained at some point by this man.

An Invisible Skeleton

When I received the storyboards for *Wishmaster*, I smiled when I got to the page with the skeleton attack. I was finally going to get to animate a skeleton for a feature film, or at least I hoped I would. My heart sank when I learned the plan for the sequence was to use a mechanical skeleton puppet for the whole thing. But I had a feeling something might come up.

During principle photography, the mechanical skeleton looked and performed well, but there was something missing. While the makeup effects crew was rigging for the next shot I took the opportunity to convince the second unit to shoot a background plate to use "just in case." After we rolled a couple takes I took measurements. First, I needed the camera info: focal length, lens, lens height, pitch angle, dutch angle, and a rough estimate of heading angle (measured 90 degrees from the wall). Then I noted the location and characteristics of the lights. Because this was set up for filming a practical prop and actor, all the lights were already set. I also took a few pictures and video of the mechanical skeleton for reference. I'm sure in dailies the next day a few people were wondering what they were looking at when the shot of a wall came up. Up to this point there was no digital skeleton effect, it had no FX number, no storyboards, no budget, and most of the crew (including Robert Kurtzman, the director) didn't know there was even a chance it was in the works. Because there was no reason to hold on to the film until editing started (so the length of the shot could be determined) we were given the plate of the wall early on. After the film was scanned at Digital Magic it was delivered to us on Exabyte tape. With the background in hand and the blessing of Tom Rainone, the film's effects supervisor, it was time to get to work.

All About Bones

My first step was to model the skeleton using the reference I took and a single scanned frame of another shot of the skeleton. Working with a low-res Viewpoint skeleton object, I created a skeleton suitable for my needs. Most of the bones were MetaForms or MetaNURBS, but a few needed extra attention. The skull was a bit more challenging, the jawbone (or mandible for you Ph.D's) of the practical skeleton was oddly shaped and protruded quite a bit. I reworked it to get the right look. About every bone was manipulated in some way. The hands were challenging. There were a lot of bones and I had to think ahead about how I was going to animate. I decided to make each hand a single object, and if they

needed movement I would bone the bones. I also split the spine into two objects, separated just below the rib cage. This cut down the number of loaded objects and simplified the animation. Every bone needed to be moved to set its center in a logical place. It took a few hours of "doctoring" to get all the individual bones ready. Now I needed a "master scene."

Master Scene

One scene-creating technique at Computer Café is "master scenes." This mainly consists of all the elements to build a character, setting, or lighting setup. After loading everything into place and setting up parenting, scaling, and so on, a scene is saved. When we need that particular element, we just "Load From Scene" and everything's ready to go. For the skeleton, the master scene consisted of all the bone objects loaded and parented, as they needed to be for smooth animation. I also tend to use the master scene for rough surfacing. To match the practical skeleton's surfaces, I used LightWave's built-in surface settings as well as a custom surface plug-in. For the skeleton's primary surface, I started with a basic bone color with the standard surface settings. I then layered the custom plug-in four times, once for an overall bloody mess, once for some black discoloration, another blood layer in a different scale, and another for some bumpiness. With some specularity to make it look wet, everything was looking pretty good. The only other surface was the teeth. For them I used a tooth enamel color as the base and cut back on the opacity of all the plug-in layers.

Bone-imation

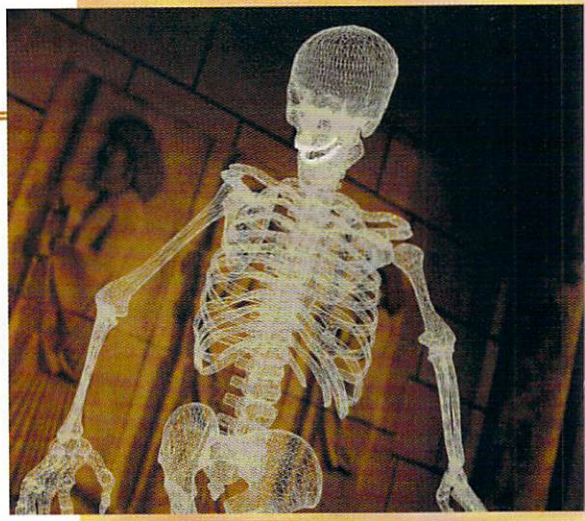
With everything ready, animation and integration could begin. While setting up the scene I couldn't help but think of pictures I've seen of Ray setting up his sequences with the surface gauges and attention to detail. I was truly inspired. The first step was to "rough in" the scene. I loaded the provided background into Digital Fusion and adjusted the color levels and brightness/contrast until it matched the reference shot. I also blurred it enough to set the skeleton off of it. This simulated the depth of field but also stripped out the film grain, which would need to be dealt with later. When the look of the plate was right, I saved it and loaded it as a background image in LightWave. Using my notes from the set, the camera was put into position and the right lens was selected. I then loaded the skeleton from the master scene and put it in position. For true integration, lighting is essential, so I set up three lights with settings similar to those on the set. The lights consisted of a key light (fairly harsh and raking from the right), a rim light (to pick up the outline and fill in some detail), and a "bounce card" area light (to fill in the shadows a little). With some tweaking ("endless test renders") the lights looked good. It was time to animate!

The skeleton's action was to stand up, look around, spot a suitable victim, and leap out of frame. I knew this was a waist-up shot so I didn't bother to load the legs. Why mess with what won't be seen? I started by crouching the skeleton out of frame and set a key frame for every object. It was then a matter of slowly building up the action. I started with the big moves, like standing up and leaping, and worked down to the subtle stuff, like the way it sneers when it spots the victim. Since there was no specific frame count to the shot it was a free-for-all. I did see a rough cut of the sequence that gave me insight into the timing. The last step was to make minor lighting and surface adjustments and add our Film Grain plug-in to the frame. For a test render, I set the resolution to D1 and rendered the sequence. A few more tweaks were made to the lighting, surfacing, and animation and it was ready for final output. For the final output, the resolution was set to 2048 x 1556, the camera was set to high antialiasing, motion blur with a 33 percent blur length, and the image format was set to SGI RGB. It rendered overnight on a 500MHz Alpha. The frames were backed up on Exabyte and sent for film-out.

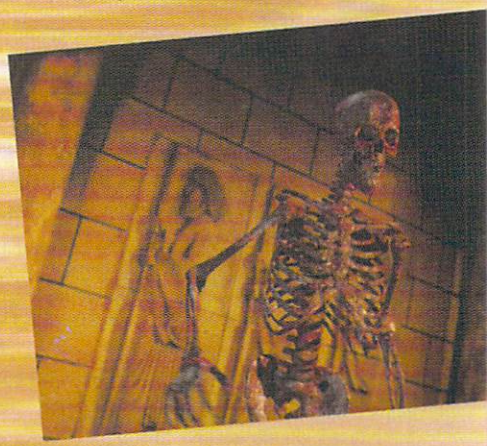
The 24-Hour Skeleton

I don't know if it was inspiration or blind luck, but I turned that shot around in a day. In the final cut, the shot was split into three pieces, and the final sequence is excellent. It was a thrill to see my skeleton come to life on the big screen. With music and sound effects it was like watching someone else's work. I'm no Ray Harryhausen, but maybe someday I'll be close.

Tom Williamson is effects supervisor for Computer Café, Inc. Email him at tom@computercafe.com.



Above and below:
The skeleton's action in Wishmaster *was to stand up, look around, spot a suitable victim, and leap out of frame.*



Terms of the Trade

Plate-A shot to be used as a background for a visual effect.

Dailies-the daily screening of everything shot the previous day.

Dutch angle- A "banked" camera. To accomplish this a "dutch-head" is used on the tripod or dolly.

Focal length- The distance set on a camera lens to determine what is in focus.

Algorithm- A mathematical procedure usually involving repetitive steps.

Surface Gauge- The device used in animating physical objects. It is placed near a reference point on the object to determine the distance you have moved while posing between frames.

Depth of field- The distance on either side of an object in focus that is also in focus.

Film-out- The procedure of exposing computer images on film. Also called "recording out."

Reviews

CANDID OPINIONS ON THE LATEST PRODUCTS AND PLUG-INS

LIGHTWAVE 3D TOOLS
Film Grain
Real World Navigation Suite

FLYER AND TOASTER TOOLS
WaveMaker 2.5

Film Grain Plug-in

BY PATRIK BECK

What can you say about a product that is most successful when invisible? That's the case with the legendary Film Grain plug-in from Worley Labs, distributed by NewTek, which is now available.

The Film Grain plug-in adds artifacts to sections or all of a rendered image to reproduce the grain seen on movie film. In other words, it makes it "grainy."

The plug-in is copied from the CD into the plug-in directory and activated by using the "add plug-in" command. The documentation is provided as a hypertext Netscape document and does a very good job explaining the film grain process even for those who have little experience dealing with film. The plug-in is activated through the effects panel/image processing tab under image filter plug-ins. Film Grain has an Options panel that enables you to make several adjustments to the size, color, and nature of the grain.

This image was shot on 16mm film stock, transferred to video, then digitized. The creature had Film Grain applied to help marry it to the scene.

The default size for the grain is 2.00 pixels, which is a little extreme for video work but just about right for 2K film. I found that grain size from 1.15 to 1.85 works well for video resolutions. You can control the amount of grain for each of the color channels—red, green, and blue—individually, to compensate for film that has been color corrected. A variation setting allows the grain to increase with the color value to further emulate natural film grain.

When real film gets oversaturated with light, it can have the effect of washing out its own grain. This effect can be duplicated with the grain decay function that is activated by checking the "include saturated grain effect" box.

The grain can be added to the full image, to rendered objects only, or to specific surfaces. Individual surfaces can be flagged whether or not to receive the film grain on a per-surface basis. This is very handy when using front projection mapping, so that the image used to mask out part of the screen does not get double the proper amount of grain.

At the bottom are the L and S buttons. These are for loading and saving your favorite settings. This is a very important function that many other plug-ins skip and I am glad to see it here. The documentation mentions that some sample settings are included on the CD but the samples did not make it to my CD.

I do have some minor gripes. The settings on the film grain option panel are of the set-and-forget type, which means there is no way of varying the settings over time. Some sort of envelope would be nice, or the ability to use a reference object. That would be particularly handy when using film grain to simulate electrical interference or video static.

My other gripe is mostly personal. There are no examples included. There are no scene files or before-and-after examples. Granted that most of the time the proper settings will need to be done by eye, it would still be handy to have a chart of the proper settings for 8, 16, and 35mm film stock. (The CD contains only the plug-in and the docs, leaving it 99.9 percent empty. Does this bother anyone else?)

With the proper settings, you should be able to match nearly any grade of film. The ability to select the effect on both a per-object and per-surface basis is simply wonderful, as is the ability to load and save settings. Though the Film Grain plug-in's primary purpose is for compositing LightWave renderings with film stock, it is useful for other things as well. A dash of grain to a LightWave animation is like adding a little reverb to an audio mix, and you should notice it more when it's taken away than when it's added.

The Film Grain plug-in does what it is supposed to do, does it well, and in a way that is both precise and easy to understand. It is a no-brainer that anyone using LightWave for film work should have this plug-in. Videographers and animators should also give it some consideration when looking for that something extra to include in their bag of tricks.

CONTACT INFORMATION

Film Grain
$149 (Intel, DEC Alpha)

Web:
www.newtek.com

mail:
NewTek, Inc.
8200 1H-10 West, Ste. 900
San Antonio, TX 78230
(210) 370-8000
(800) 843-8934

Circle Number 199

Infinite Pictures' Real World Navigation Suite for LightWave 3D

BY JEAN-ERIC HENAULT

Real World Navigation Suite gives you the power to create virtual walk-throughs and other panoramic effects.

CONTACT INFORMATION

Real World Navigation Suite
$349 (hard copy)
$299 (electronic copy)

Web:
www.smoothmove.com

mail:
Infinite Pictures, Inc.
33 NW First Ave., Ste. 1
Portland, OR 97209
(800) 990-2449

Circle Number 198

Have you ever wished you could simply walk through your 3D models or virtual environments in real time, without having to render every time? This is what Real World Navigation Suite (RWNS) for LightWave 3D from Infinite Pictures has accomplished.

RWNS enables you to transform any LightWave scene into a "SmoothMove Panorama," similar to other popular virtual formats like QuickTime VR from Apple or IPIX from Interactive Pictures, Inc. For convenience, the SmoothMove viewer (for seeing the results on your Web site or other multimedia applications) is widely available for free directly from Infinite Picture's Web site.

One of the most original features of RWNS were the clickable hot spots that can be created over your environments. These hot spots can be used to initiate things like AVI movies or WAV files, or target a page on the Web. Thus you could create a string of SmoothMove environments, connected together through hot spots.

In order to produce a Panorama, RWNS needs to render a total of six frames of a still scene; those six frames are equivalent to the six sides of a cube. LightWave renders those frames with its lens opened to a perfect 90 degrees. RWNS then takes over and stitches those six frames into a seamless spherical environment for your camera to scroll into.

The whole process is easy to set up. Simply load a scene into LightWave Layout, place and adjust your camera, activate the Camera Motion Handler that comes with RWNS, and in the Render panel, use the RWNS animation saver. Then render!

There are a few limitations inherent to the process, however. For example, I found that some lens flares will create some visible seams, especially those that change shape or strength based on the camera's angle. You are also limited to motionless environments, which is to be expected.

I found installing RWNS to be flawless. This is one of those rare instances where I can say that I was impressed by a software installation. The installation program detected that I had an old version of the viewer installed on my browser and offered to remove it, so that a newer version could be installed in its place. In all, it installed over half a dozen tools on my hard disk, including the plug-ins for LightWave and for my browser (Netscape and Internet Explorer compatible) and a few other tools.

Also included are the Avatar Editor, which enables you to place virtual avatars in your environment, the Hotspot Editor, the Pan Viewer, and the CG Seamer, which help stitch photographs into a Panorama.

The registration process makes you mail or email a 16-digit code in order to receive the final key to unlock the plug-ins. After sending my key to Infinite Pictures via email, it only took about an hour or so to receive the unlocking code.

I was a bit disappointed by the fact that there are no sample environments on the CD. Other than that, I found the Real World Navigation Suite to be a tool with many uses. An architect could use it to represent a virtual walk-through of a virtual house, a Web site designer could use it to create a rich 3D Web environment, and it could also be used in many ways in an interactive presentation.

I strongly suggest you take a look at some of the samples posted on Infinite Pictures' Web site located at www.smoothmove.com. I'm also now looking to use some of this technology at the *NewTekniques* Web site located at www.newtekniques.com.

WaveMaker 2.5

BY
BOB KETCHUM

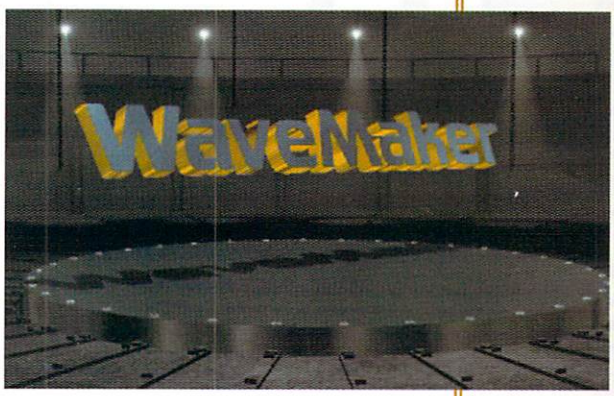
Radiosity Software has just released a 2.5 upgrade for its popular WaveMaker program. It is fully compatible with NewTek's LightWave 3D 4.0, 4.1, 4.2, and Video Toaster Flyer. Updated are several new pre-fabricated scenes for even more incredible animations on the Flyer.

Tony Stutterheim's original WaveMaker 2.0 was released in 1993 and was designed to be a quick and easy interface to create LightWave animations even for inexperienced animators. Everything is done in WaveMaker by point and click. You can add your logo to a scene; choose how the logo moves on and off the screen (as well as set the duration times and length); change backgrounds; and add up to eight layers of elements to the scene. A LightWave scene file can then be generated by WaveMaker and rendered in LightWave.

Before version 2.5, version 2.0 featured 16 pre-fabricated animation scenes that were set up and ready for rendering. All you had to do was add your logo and WaveMaker did the rest. It even gives you the option to create your own custom LightWave animations. I found the "less is more" approach to be more satisfactory when creating my own custom animations. Too many elements tend to clutter up the animation and detract from the logo's presence and purpose.

Version 2.5 includes a new set of eight pre-fabricated scenes. A word of caution here, though: After checking with Radiosity, I learned that these new scenes are so complex that they really eat up your chip RAM. With one scene in particular (Industrial), I was warned not to try to render it until I had exited WaveMaker and any other application I might have running. I was told that the minimum RAM needed for that scene was 18MB. They were right. Even with all my applications turned off, LightWave gave me the dreaded "Not enough memory for frame buffer" message when I attempted to render the scene.

But wow, what a fine-looking LightWave scene it turned out to be! Imagine the inside of a fog-filled warehouse with lots of mysterious spots and walkway lights.



WaveMaker 2.5 offers a new set of eight pre-fabricated scenes, but make sure you have enough RAM to run the program.

There are chains hanging from the ceiling and a circular steel-plate riveted floor with a huge hole right in the center. Now your logo comes rising up out of the hole in the floor on a pneumatic pedestal as the camera dollies in closer. Get the picture? Each of these new version 2.5 scenes is special in its own way. The designers have truly taken this program to a new level.

I recently used the "Pillar" prefab for one of my clients, which would have taken a couple of hours or more to create from scratch. With WaveMaker 2.5 it's just a point and click away.

Another great feature of WaveMaker is SmartAnim. Just add your logo and let WaveMaker randomly select the background elements and set up the scene for you. If you are running LightWave simultaneously, WaveMaker will load the scene automatically for you. All you have to do is hit the Render button. How much easier could it get?

If you do a lot of industrial videos where you want something with more punch than a simple flying logo, WaveMaker 2.5 is for you. Make sure you have enough RAM, however, and don't forget to kill off all your applications before rendering the more complex scenes.

CONTACT INFORMATION

WaveMaker 2.5
Radiosity Software
$129 (Amiga)
$75 (upgrade)

Web:
www.wavetech.net/~wave/

mail:
3970 North St.
Shoreview, MN 55126
(612) 484-4097

Circle Number 197

VIDEO TOASTER FLYER

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Tutorial

A STEP-BY-STEP GUIDE TO CREATING MORE PROFESSIONAL PRODUCTIONS

BY DAVE JERRARD

LightWave by CANDLELIGHT

Mastering the candle-lit moment with LightWave 3D.

When I first started to dabble in 3D imagery, I remember being fascinated by how the computer could realistically reproduce the effects of light playing on the surfaces of objects. Of course, this was back in the days of chrome balls on checkered floors, and 3D images always seemed hard and cold. One of my first attempts to get around this cold imagery was a simple candle-lit scene involving a single candle and some wine glasses. Everything looked pretty good in spite of the lack of any real texturing abilities, but the image still seemed a bit hard (yet not as cold). All I needed was to get that CG look out of the image, and get it to look real. When LightWave 3D came along, the realism fell into place. The following steps will help you create that special candle-lit moment.

All the elements in action, showing the soft lens reflections & the even wax glow, courtesy of motion blur.

The Candle

1. Enter Modeler. To size the windows appropriately, zoom in using the > key until you have a 10mm grid.

2. Widen out the face view and select the Polygon menu. Select Create Points and place a point on the Y axis centerline at roughly the 145mm mark. Add a few more points, tracing out a tapered shape similar to the one in Figure 1. You shouldn't have more than about 10 points for this step.

3. Hit the P key to create a polygon. Don't worry if this is not an exact match—we're not done yet. Switch to the Modify menu and select the Drag tool. Tweak this shape a bit if it's not a very close match to the image. Pay special attention to the hook-like shape at the top. It might not look correct now, but we're going to be doing a bit of "Meta-magic" on it later. Once the shape is matching, make sure you have two points that rest exactly on the center Y axis. This will assure a good lathe, which is what we're going to do next.

4. Go to the Multiply menu and select the Lathe tool. Pull up the Numeric requester, set the axis to Y, and make sure the center fields are all zeros. Leave the number of sides set to 16, and hit OK. Hit

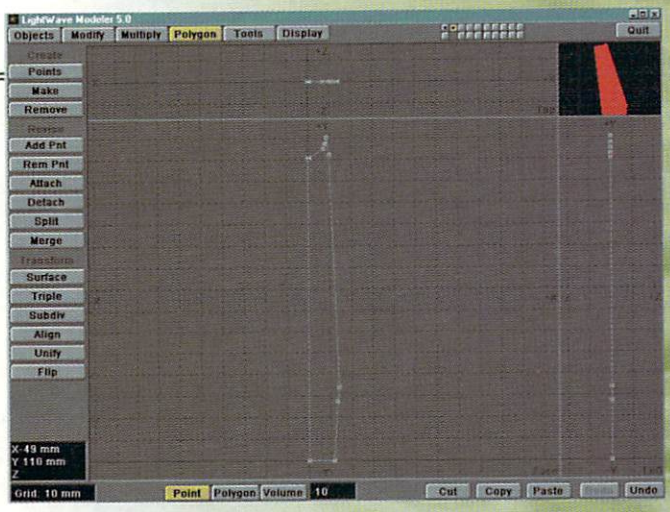
Return to finish the Lathe. You should now have a rough representation of a candle. Rotate this 11.25 degrees around the Y axis. This would be a good time to save the object. Now to start the magic.

5. Widen the top view and fit the candle to it by hitting Ctrl-A. We're going to switch to MetaNURBS mode for much of the remaining work, but we have a few three-point polygons that just don't work in that mode. [Editor's note: As of version 5.5, MetaNURBS works with three- or four-sided polygons.] Switch to Polygon mode and hit the W key to bring up the polygon stats panel. You will notice that there are 32 polygons listed as having three points. Hit the + button to select these. Go to the Polygon menu again, and this time hit the Merge button. You will now have a 16-point polygon at both the top and bottom of the candle. You will also have a couple stray points sitting on the center axis. Delete these points, as they are no longer needed. You're now ready to go into MetaNURB mode. What about the 16-sided polygons, you ask? We'll keep the 16-sided polygons for now. MetaNURBS won't affect them for what we're going to do.

6. Hit the TAB key and click OK on the warning that pops up. You'll notice the candle has taken on a much more realistic look. I prefer to keep the Display Options Patch Polygon turned off since that option tends to add too many lines, which obscure the work area. If I get lost, I can toggle MetaNURBS on and off to quickly get my bearings. It's also a good idea to work using a color similar to the one for rendering, so let's get this set now.

7. Hit the Q key, and give it a surface name, such as candle. Set the RGB values to 206, 38, 30. Give it a low glossiness, 70% specularity, and turn on the smoothing option. If you're using a color preview display, you'll see the candle looking more and more like the real thing.

8. To give it a melted look, we'll now rough up the top of the candle. Zoom in to the top of the object and select points that are floating above the lip of the candle. Go to the Tools menu and select Jitter. In the Jitter panel, select Uniform and set a radius of 5mm for the Y axis and 0 for X and Z. Hit OK. The candle should look melted at the top like Figure 2. Undo and try this again a few times to get the look you like since each time you execute the Jitter, you'll get a different result.



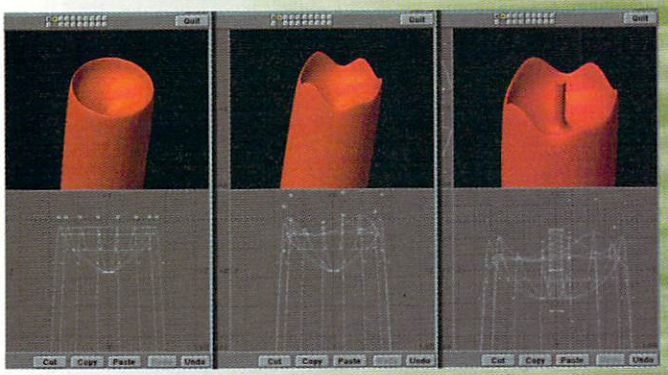


Figure 1.
The beginnings of a candle. Note the second point adjacent to the center point in the dip.

Figure 2.
The evolution of the candle top, highlighting the points that are jittered, and the polygon that becomes a wick.

9. Deactivate MetaNURBS for now and select the 16-sided polygon in the center. Bevel this upward, with an inset of 0 and a shift value of 5mm. Make sure you have the edge setting set to Inner. This might seem a bit short for a wick, so repeat the bevel.

10. Deselect everything and hit the TAB key. Hit OK on the alert that pops up. You'll notice that the base of the wick now curves smoothly into the surrounding area. If we only did the one bevel, this curve would creep up the wick too far.

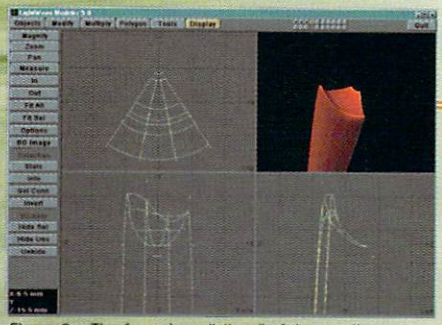


Figure 3a. The front three "slices" of the candle.

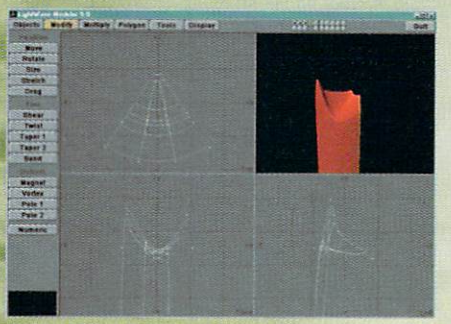


Figure 3b. Flattening a channel for the wax run-off.

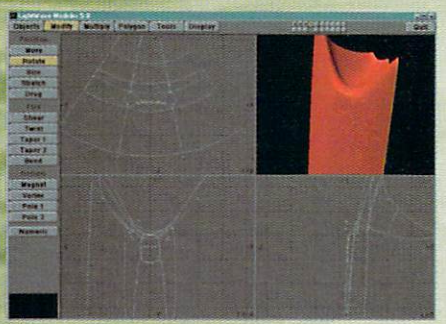


Figure 3c. The beginnings of a drip, showing how the selected patch is used to keep the candle side smooth.

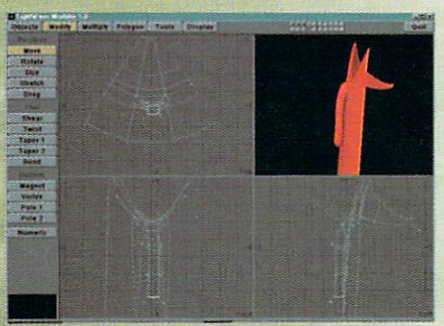


Figure 3d. The drip takes shape with a few repeated bevels.

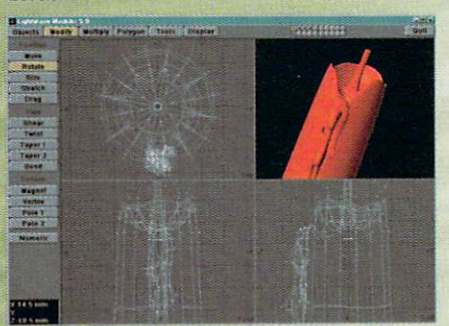


Figure 3e. The finished drip, after applying a few bevels to its sides.

11. To make the candle look used, we'll add some drips down the side. In the Top view, select the three center "slices" of the candle on the negative Z side. Go to the Display menu and Hide Unselected (Figure 3a). What we want to do first is pull down the lip so it is about even with the base of the wick. This will be the point where our wax starts to drip.

12. In the face view, select the top-most MetaNURBS patches, which lead from the base of the wick to the top of the wax lip. Make sure the outer strip that runs down the side is not selected. Using the Stretch tool, place the cursor about a millimeter or two below the base of the wick—you should still see some points there. Place the cursor over them and then scale the selected patches down so that they are nearly level (Figure 3b).

13. Once this is done, deselect these patches and select the outer patch that leads down from this channel we just created. This is the patch that we will "grow" into a long wax drip using the bevel tool. To get started, let's first bevel this with an inset of 0 and a shift of 1mm.

14. Working in the side view, rotate the new selected patch so it is roughly aligned with the side of the candle. Once done, use the stretch tool to narrow it a bit in the face view, and to adjust its height. From here, you can use the drag tool from the side view to position it so it is similar to that in Figure 3c. Don't worry if this patch doesn't look right. What we're after here is to get the two long patches on either side of this one to smooth into the rest of the candle without any readily noticeable bulging. Now we can start using a combination of beveling and positioning to bring this drip down the side of the candle.

15. Bevel this patch again, and use the drag tool on the side view to pull the new patch out and downward. Do this bevel and drag routine a couple more times, and you will soon have a long single drip down the side of the candle. Feel free to alter the thickness and shape of this drip as you go.

16. Now that we have a good-looking single drip (Figure 3d), we can add in a few other drips, since wax likes to form multiple paths over older drips. Deselect the patch you were just working with and select a new patch near the top of this drip, preferably a sideways-facing one. Again, using a combination of bevel, drag, and move, start "growing" another drip. Don't worry too much about having too many points cluttering up the area. The drag and move tools will only affect the points that are connected to the selected patch that you're beveling with, so you won't accidentally disturb anything else. If you do get lost, and can't figure out what points belong to the patch you're working on, tap the TAB key, and the patch will revert to polygon. Its corners will show you the locations of the points you want. After awhile, you should have a nice cascade of drips running down the side of this candle, as in Figure 3e.

17. Once you have a series of drips that you're pleased with, unhide the hidden patches. Before taking this into Layout, we need to get rid of these MetaNURBS patches. In this case, we won't use the Freeze tool to do this. Instead, we'll use the old Metaform tool. The reason is those two 16-point polygons are at the top and bottom of the candle. If we did a freeze on the patches, they would pull away from these non-NURBS polygons, leaving gaps in the object. Metaform will do a similar effect, but will not pull away from these patches. To do this, make sure that only the MetaNURBS patches are selected.

18. Tap the TAB key to flip these back to regular polygons. Now, apply the Metaform tool without deselecting them. Do this twice. You will notice that the top and bottom 16-point polygons will remain flat yet will slightly alter their edges to remain connected to the newly formed polygons.

19. The last step to do on this is to triple the non-planar polygons, which there will be a good number of by now. In Polygon mode, hit the W key, select the + beside the non-planar label, then hit Shift-T to triple these. Done! Now save the model and load it into Layout.

20. The first thing we need to do with this is give it a waxy look. Try these values for a quick start:

Surface Color:	206, 38, 30
Diffuse Level:	90%
Specular Level:	70%
Glossiness:	Low
Sharp Terminator:	On
Smoothing:	On
Max Smoothing Angle:	80 degrees
Bump Map:	Fractal Bumps
Texture Size:	X: 0.02
	Y: 0.002
	Z: 0.02
Texture Amplitude:	20%
Texture Opacity:	100%

A slight fractal variation in the color channel will enhance this even more, but make it very slight.

21. Most candles are made with a very light-color wax that is coated with a richer color on the outside. This lighter wax becomes visible where the flame has begun to melt the wax, so let's add this detail as well. In layout, select the top view and center the candle in it. The candle should be in its default position for this and preferably it should fill the view nearly to the edges.

22. Take a screen grab of this and bring the image into an image editor. Once there, paint the inner area of the candle top a bright white, but do not paint past the lip of the candle. Paint the rest of the screen black, so you have a white disc-like shape on a black background. Figure 4a shows a cutaway of this image superimposed on the actual screen grab. The

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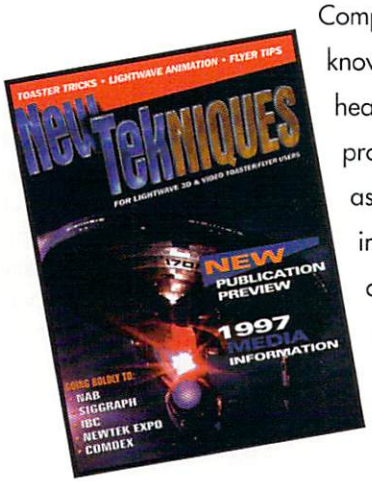

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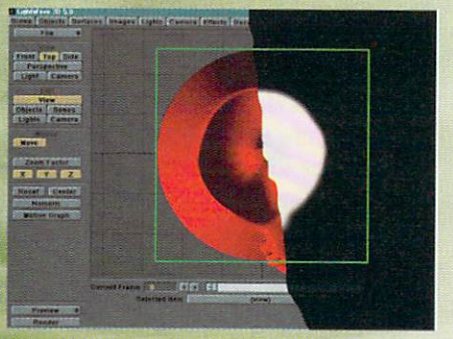


Figure 4a. A cutaway revealing the original capture below the painted map.

Figure 4b. The simple setup of the alpha image.

green square indicates where the image should be cropped. Apply a slight blurring to the image to soften the edge of the white area. What we have just made is an Alpha image that we will use to color the center of the candle without affecting the outer color. Save this image as a grayscale named CandleTop.tif, and load it into LightWave.

13. In the Surfaces Panel, map this image onto the candle along the Y axis, as both the Texture Image and the Alpha, then hit Automatic Sizing. Make sure the texture is centered on the X and Z axis. This has now run a light streak through the center of the candle while leaving the original red color on the outside untouched. This allows you to freely change the color of the candle using the color sliders while still keeping the white center. If you added the little dimple in the image over the wax drips as shown, you could run into a problem with this dimple causing a vertical stripe through the drips and down the length of the candle. To avoid this, use the Texture Falloff. A value of 8000 along the Y axis works well. Just make sure to center the texture at the base of the wick—a value easily found in Modeler by placing the cursor over the wick and reading the coordinates in the lower left corner—or this image will sit somewhere deep inside the candle, invisible to the camera. Set the Texture opacity to 80% to give the white center a slightly reddish tint.

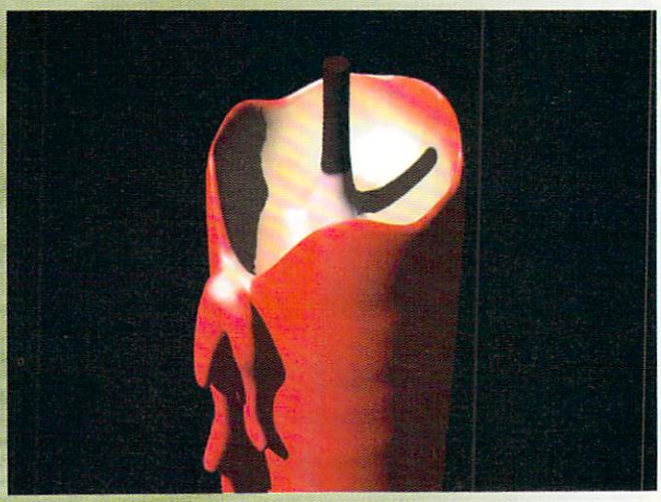


Figure 4c. The final effect of the alpha image. Note the lighter shade running over the drip edge.

14. To color the wick, we'll use the diffuse channel to darken it. Click the T button beside Diffuse Level and select this image again. Map it along the Y axis, but this time, make the Texture Image a negative, and deactivate the Width & Height Repeat. Give this texture a size of about 0.003 so that the image just fits over the top of the wick and fades out as the base widens. This may require a bit of tweaking to get just right. Set the Texture Opacity to somewhere around 90% so it's not a pure black. You should now have a candle very similar to the one in Figure 4c.

15. Save this object so you don't lose the texture information. Now that we have a candle, let's light it up.

16. Hop back into Modeler, and zoom in until your grid size is 2mm.

17. In the Face View, plot out a few points to trace the profile of our flame object. This object should only be about 4 to 5cm tall and 10 points should be about all that is required. Select these in a clockwise order and create a polygon. Make sure you have at least the bottom center point resting exactly at 0 on the X and Z axis. Again, you can use the drag tool to adjust the points so the shape looks something like the one in Figure 5a.

Helpful tip: When creating a polygon that is going to be lathed to create an open-ended object, place a single point out in front of the open end, forming a spike. This way, when you lathe the polygon, you can easily remove this spike by clicking on the point with the polygon selector and delete the polygons for the spike, thus opening the end of the object. This works particularly well for complex shapes that may preclude the ability to just lasso the end polygons.

18. Select the Lathe tool and open its numeric requester. The default values of 16 sides centered at 0 are just what we want. Set the axis to Y and hit OK. Hit the Enter key to perform the Lathe.

29. Select the polygons that form the point at the top and delete them. Now, we're ready to smooth this out.

30. Go to the Tools menu, click on the Custom button, and scroll down to MetaFormPlus. In the panel that pops up, activate Triple ALL QUADS, and enter a subdivision level of 2. Hit OK, and we've done the flame. Save this object as Flame.lwo.

Note: We could have done this using the standard MetaForm, but to get the same result would require two passes and we would also have to take a third step and triple the polygons afterward. The MetaFormPlus does all this in one single step.

31. To surface the flame realistically, two images will be required. The first is a simple vertical grayscale image, graduating from black to white, top to bottom. A few vertical streaks will improve the effect (Figure 6a). To create a color map for the flame, hop into your favorite paint program, and create an image similar to the one shown in Figure 6b. Be sure to make the bottom eighth of the image a light shade of blue. This is important, since this will create the simulation of a blue inner flame. This image does not need to be large; a 64 x 64 pixel size will be sufficient. Blur the image a bit to soften any harsh edges that may appear.

32. In Layout, clear the scene if you haven't already done so, and load Flame.lwo, as well as the two images created above. While in the Objects panel, turn off all the shadow options for this object.

33. Open the Surface panel and rename this surface to Flame. Set the Diffuse Level to 0, and activate Additive, Smoothing, and Double Sided.

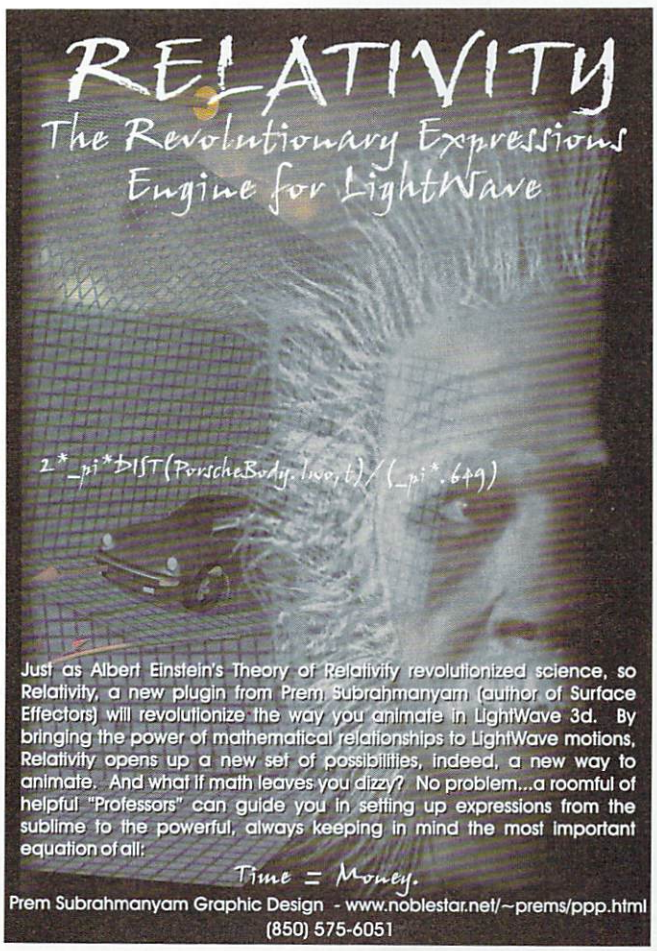
34. Click the Texture button for the Luminosity channel and select Cylindrical mapping. Choose the grayscale image as the Texture Image and auto size it. Deactivate the Pixel

Circle Number 218

TOP 10 TIP-OFFS YOU'RE NOT A GOOD ANIMATOR:

Excerpts from forthcoming humor book "RENDER GUARDIAN!" by Willie Lloyd, LightWave Animator/3D Humorist, willmation@aol.com

10. Your computer does not have vocal recognition or artificial intelligence hardware, yet it pleads with you to give up your profession.
9. You think INTER-LACED DISPLAYS are frilly garments seen in Victoria's Secret windows.
8. The frequent Client suicides in your animation viewing suite.
7. You can't figure out why your dongle doesn't have cream filling.
6. When you design custom 3D objects you're only accurate within 358 degrees.
5. You apply complex texture maps to objects with wallpaper paste.
4. Your last customer figured out a way to wrap fish with your demo reel.
3. The FCC passes regulations that restrict television stations from broadcasting any programs containing YOUR animations.
2. Whenever you call to request reference letters from past customers, they begin to curse in ancient Latin languages, causing your phone to levitate.
1. That "Triple-Your-Money-Back" satisfaction guarantee you came up with has put you $3 billion in debt after three months in business.



Circle Number 219

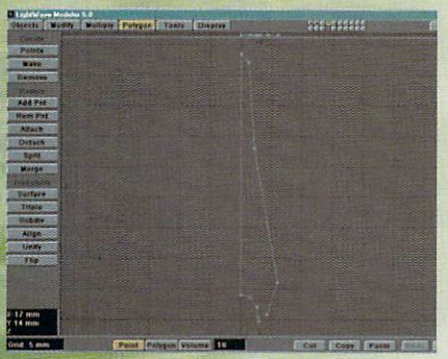


Figure 5a. The polygon that will be lathed. Note the pointed top.

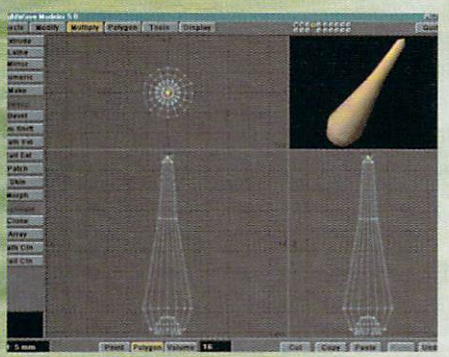


Figure 5b. The lathed object with the pointed end polygons highlighted, ready for deletion.

Figure 6a. A very useful gradient grayscale. The vertical streaks are its secret.

Figure 6b. Color map for the flame, with the bottom eighth of the image colored blue.

Blending and the Texture Antialiasing options. The Texture Axis should be set to the Y axis. Click the Transparent button for Edge Transparency and set the Threshold to 0.9. All it needs now is color.

35. We will use the small color image we created earlier, but this one will be spherically mapped to the flame. For now, click the Texture button beside the Surface Color settings. Select the color image for the Texture Image, and set the Texture Type to Spherical. Set the Texture Axis to Y again, and activate Pixel Blending. Texture Antialiasing should be deactivated here. What remains to be done is to line up the blue part of the image so that when it's spherically mapped onto the flame, the blue part of the image only covers the hump at the bottom of the flame. We could spend time trying out various values for the texture center, or we can use Modeler to tell us the value.

36. Enter Modeler and switch to an empty layer. In this layer, create a simple 16-sided cone in the face view. Size does not matter, but position does. Set the layer containing the flame object as a background layer and using the Move tool, move this cone to a position in which the two bottom-most triangles just cover the "hump" at the bottom of the flame. When you have this set up, select the center point of the cone, and hit the I key. This will bring up the info panel for the selected point. Read the value in the Y field. This is what we will use as a center for the texture (Figure 7). Since we're trying to line up the bottom one-eighth of the color map to a specific portion of the flame, a 16-sided cone provides a great reference for where this blue area will map to when it's spherically projected. The cone has eight segments from top to bottom, each representing one-eighth of the image. By positioning this object so the lowest segment just covers the hump, we've determined the center point needed to have the lowest one-eighth of the image to cover the same area.

37. Go back to Layout and enter this value into the Y field in the Texture Center. Save this object again so we don't lose the texture information.

38. Hit F9 to generate a test render of the flame. You should have an orange flame with a blue inner flame on the screen. If the flame appears too washed out, go back to the Objects panel and adjust the Object Dissolve slightly. This can be used to adjust the flame's apparent brightness and even be used to vary it over time if required.

39. While we're here, we'll give this flame a little life, since these things tend to dance around a bit in real life. The first thing to do is enter the Displacement Map options. Select Fractal Bumps as the Texture Type and set the Texture Amplitude to 0.002 and Frequencies to 1. Change the Texture size to 0.01 on all three axes and then click on the Texture Velocity button. Enter a value of about 0.002 on the Y axis. This will cause a small, upward-moving rippling effect for the flame. If we left everything as it is now, the base of this flame would tend to bound around too much. To fix this, we first need to center this texture at the top of the flame. A value of 0.04 in the Y axis field should do. Next, click the Texture Falloff button and enter a value of 1600 in the Y axis field. This will reduce the displacement at the bottom of the flame without removing it completely. Generate a wireframe preview to see this in action.

40. We can make this flame bounce as though the air was disturbed. We'll do this by merely adjusting the height of the flame over a period of about two seconds. Open up the Motion Graph for the flame and set the Current Channel to Y Scale. We'll give the flame a series of six bounces here, so we'll need to add 12 key frames to the graph. Select the Create button and add new key frames to the graph, similar to the ones in Figure 8a. For best results, this oscillation should

only span approximately two seconds, and should decrease in intensity. Scale values should range between 0.7 and 1.4, alternating up and down. Add a last key frame a few seconds later, say frame 300, to let the flame settle itself again. Key frame 0 and the final key frame should both be zero so we can loop this later. We can also animate the width of the flame to match its flickering by dragging the key frame values around for the X Scale and Z Scale channels as well. Again, keep the variations small. Values between 1.3 and 0.8 are a good range to work with (Figure 8b). Do another wireframe preview to see how these changes look in action.

41. To give this flame a sense of wind direction, we'll also animate its bank. In the Motion Graph, set the Current Channel to Bank Angle, and drag the key frames there to form another series of waves. This time, we'll only do a couple waves here since we don't want this flame to go too crazy. Drag the points to form a curve similar to the one in Figure 8c, keeping the values between 15 and -15. Set the End Behavior to Repeat and that's it! The flame is now alive! Save this scene as Flame.lws.

42. The last thing to do is to have the flame cast light, and to have this light respond to the flame's movement. For this we'll set up a small hierarchy that the light will be attached to. In the Objects Panel, add two Null Objects. Name the first "Flame Base" and the second "Spinner." Close the panel, and parent the Spinner to the Flame Base. Then parent the Flame Base to the flame object itself. Be sure that your current frame is frame 0 to avoid any "lost" key frame information. Using the Front or Side view in Layout, move the Spinner upward until it sits at almost the mid point of the flame and is slightly off center. Create a key frame for it there, then open the Lights Panel.

43. Rename the default light to Flamelight. Change its color to a light orange color—RGB values of 255,160,16 work well for this—and set the Light Intensity to about 60%. Also, set the Light Type to Point, and set the Intensity Falloff to one meter.

44. Activate Lens Flare, and enter the Lens Flare Options. Select Central Glow, Red Outer Glow, Fade Behind Objects, Lens Reflections, and Fade With Distance. For Nominal Distance, we'll leave this at 1 and adjust the Flare Intensity and Flare Dissolve to 50% each. Add a four-point Star Filter to this, rotated to 45 degrees, and we're done here. Close the panels and go back to the main Layout screen.

45. Parent this light to the Spinner null and move it upward along the Y axis, approximately one-fourth the height of the flame, and key frame it there. Now, with this assembly, the light will move to match every little stretch and tilt that the flame object does, keeping its place in the middle. The only problem is that shadows cast by this flame will look too sharp. That's what the Spinner null will fix, with the help of motion blur, by merely spinning 720 degrees on its bank axis each frame. With a default motion blur setting of 50%, this will give a full 360-degree "orbit" of the light around the null, which will give the effect of a larger light source and its soft-edged shadows.

46. Open the Motion Graph for the Spinner null, select Bank Angle, and create a new key frame at frame 1. Give this a value of 720 and set the End Behavior to Repeat. This gives us a vertical orbital path for the light, but since it's circular, it will now be wider than the flame object. Close the panel and switch to the Flame Base null. Using the Stretch control, adjust the Flame Base null to about 0.5 for both the X and Z axis, leaving the Y-axis at 1. This will squash the light's path since it is a descendant of the Flame Base null.

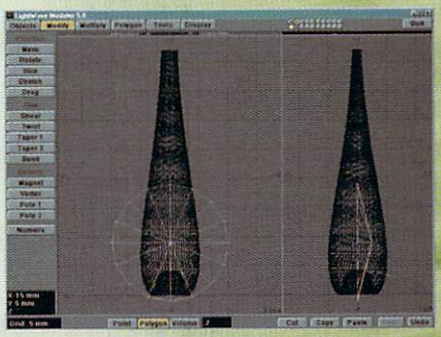


Figure 7. Using a cone as a template to determine texture coordinates.

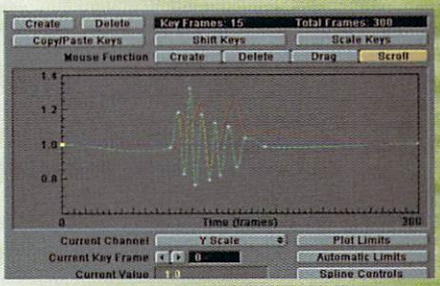


Figure 8a. Modify the Y scale to make the flame bounce gently.

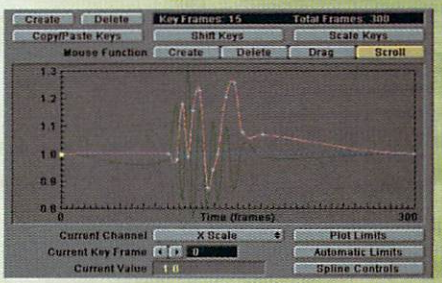


Figure 8b. Use the X & Z scales to alter the flame's thickness.

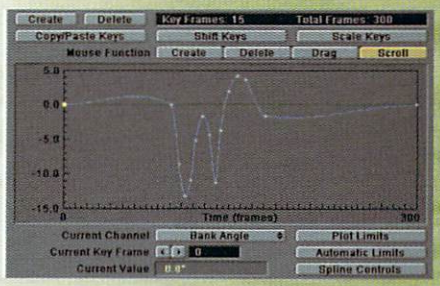
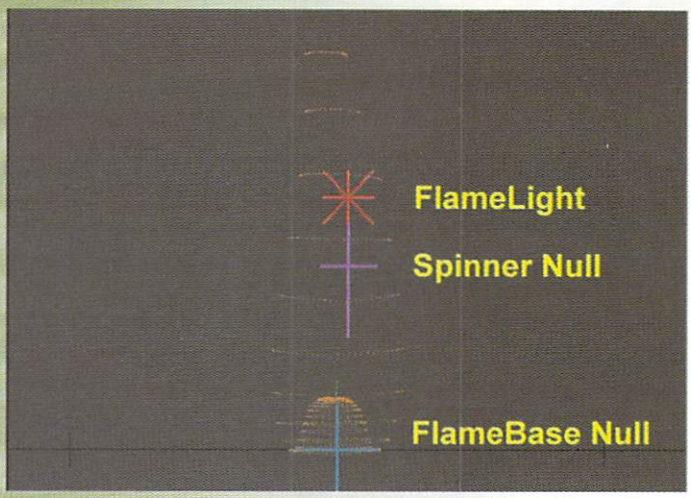


Figure 8c. The tilt envelope that will simulate a small wind gust.



Side view showing the squashed spinner null in purple with the point light attached above.

47. Since this new oval orbit is still flat when viewed edge-on, shadows in these directions will not look quite right. To fix this, we'll twist the oval by rotating the Flame Base null once per frame as well. Open its Motion Graph, and select the Heading Angle. Create a key frame at frame 1, and give this a value of 360. Again, set the End Behavior to Repeat, and close the panel. When rendered with motion blur, LightWave will blur the lighting effects of this light as it travels its path on every frame, simulating the effect of an area light.

48. Since we're already using motion blur to simulate a larger light source, we can also use it to simulate light transmission through candle wax. To do this, we'll use two spotlights. Open the Lights Panel, and click Add Light. Rename this new light to Wax Glow, and set its color to RGB 255,190,85. Set the Light Intensity to 200% and the Light Type to Spot. Activate the Intensity Falloff, and give this a value of 0.08. For Cone Angle, type 30 in both fields. Activate the No Specular option, and finally, set the Shadow Type to Off. Close the panel.

49. Parent this light to the Flame Base null, and move it to 0.08 meters on the Z axis. Next, select the Flame Base null as this light's target as well. To make the second spotlight, merely open the Lights Panel again and clone this light. Then set the new light's Z value to -0.08 meters. This will give you two opposing spotlights pointing toward the flame, which will end up illuminating the top portion of the candle when we place this flame on it. Since these will not cast shadows, they will illuminate everything at the base of the flame while their sharp falloff prevents any light from affecting nearby objects.

50. The last thing we need is a handle to make positioning the flame easy, so let's create another null object, and call it Handle. Parent the Flame to this handle, and you should have a hierarchy like this:

Handle
Flame.lwo
Flame Base
Spinner
Flamelight
Wax Glow (1)
Wax Glow (2)

Save this scene again and then clear Layout.

51. Load in the candle object again, and then click on Load From Scene. Select the Flame.lws file, and click Yes when LightWave asks if it should load the lights.

52. Close the panel, and select the Handle null. Parent this to the candle, and then move it up to the top.

All that remains is to incorporate this candle assembly into your own scenes, which is easily done by using the Load From Scene command. Render with motion blur to see the effects of the various lights, but to fully appreciate this, you really have to see it in motion.

Dave Jerrard is the director of computer graphics and animation at D'Visions Studios in London, Ontario, Canada. He has been using LightWave professionally since it was first released.

Renders

ARTWORK CONTRIBUTED BY OUR READERS

Lou Garcia—"The Silent Machines"

Software: LightWave 3D 5.5 and Photoshop 4.0

Description: This is a still from one of many fantasy universes alive in my studio. I have several years of professional experience in various types of production and am currently seeking employment.

email: ghoulvil@earthlink.net

phone: (562) 698-9550

Vincent Morano, Jr.—"City Rail"

Software: LightWave 3D 4.1 on an Amiga 4000

Description: I thought I was about to embark on a spaceship scene with this cool-looking object that was taking shape. My 6-year-old son happened to notice what I was working on and he told me that it looked like it could be part of a really neat train. Sidetracked with that thought, it became the centerpiece for the resulting image.

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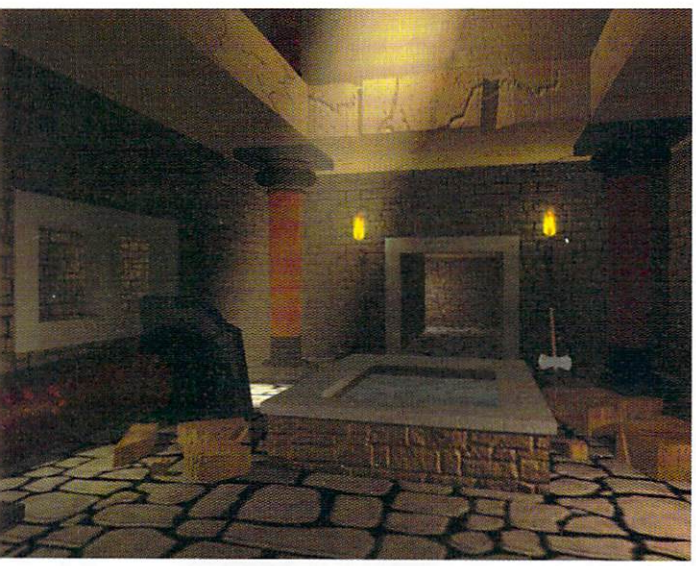

Charles Gaushell—"The Water Trough"

Software: LightWave 3D 5.0

Description: The Water Trough is a room from a game idea that we have been toying with at Paradigm Productions called Isle of the Minotaur. The architecture is based on the Palace of Knossos on the Island of Crete—the legendary home of the Minotaur. Any investors interested?

email: gaushell@2dimes.com

Eric Knight Holbrook—"Autumn Colors"

Software: LightWave 3D 5.0

Description: A quiet pond scene depicted during the season of autumn.

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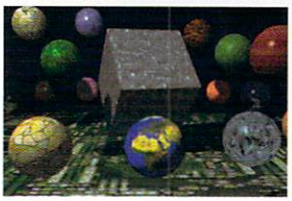

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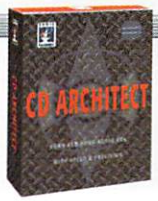

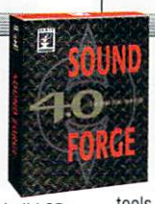

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QUICK DIAL 71

Panasonic®
AG-EZ1
3-CCD Digital Videocassette Camcorder

- Three CCDs with 270,000 pixels each are horizontally staggered for optimum resolution.
- Digital recording system delivers incredible 500 lines of horizontal resolution and virtually no noise. The signal -to-noise ratio is 54dB, an improvement of 6-9 dB over conventional analog systems. This actually represents a S/N ratio 2-3 times better than existing camcorders.
- Audio is also recorded digitally using PCM (Pulse Code Modu-lation) for quality that rivals CDs.You can choose between two-channel 16-bit recording or two sets of 12-bit stereo, with the second set reserved for uses such as narration.
- Includes a huge 1.5" 180,000 pixel color viewfinder. The viewfinder also tilts 120 degrees vertically for shooting subjects from high or low angles, & its professional size means you don't have to press it against your eye to see the picture.
- Built-in Digital Electronic Image Stabilizer (DEIS) compensates for jittery video and is particularly effective when the digital zoom is employed.
- Equipped with 10:1 power and 20:1 digital zoom lens .Both zooms are adjustable in four speeds (3.5 seconds—15 seconds) based on how hard or soft the zoom toggle is pressed. To set up a shot quickly, a Turbo Zoom function moves from tight to wide angle, or vice versa, in under two seconds. For extreme close-ups the lens can focus up to 1/4 inch from the subject.
- Digital Photo-Shot let's you record a still-frame for about six seconds, while audio continues as normal. This feature is great for creating video photo albums or insurance tapes, as 290 still pictures can be recorded on a single 30-minute tape and 580 shots on a 60-minute tape. Using the TopScan feature any shot can be found easily.

JVC
GR-DV1/GR-DVM1
CyberCam Digital Video Camcorders

DIGITAL VIDEO

The GR-DV1 and GR-DVM1 combine a 570,000 pixel CCD with 4:1:1 digital component recording to deliver razor sharp pictures with 500 lines of resolution. Digital image stabilizer eliminates camera shake without affecting resolution.

DIGITAL AUDIO

CD quality audio is now available. Digital audio recording delivers 2 channels at 48kHz (16-bit) sampling for highest quality or four channels at 32kHz (12-bit) when dubbing or mixing is required.

DIGITAL EFFECTS

A multitude of special effects are possible with the GR-DV1 including wipes, fades, and dissolves. In addition, some specialized effects such as Classic Film, Monotone, Sepia and Strobe, can be recorded in the camcorder or can be played through docking station— even if they weren't originally recorded.

SNAPSHOT/QUICKPIX/ANIMATION

- Snapshot mode captures still images with a white border around it and even adds a shutter sound effect. In Motor Drive mode multiple snapshots get recorded in rapid succession with an interval of 0.7 seconds between pictures. A Snapshot Search feature lets you put together a video album using captured photos
- QuickPix or 5-second-record mode automatically records five second clips of video and audio when start button is pressed.
- Animation mode records scenes for just 1/8th of a second each time the start button is pressed. When inanimate objects are recorded with slight changes in position between shots,an animation effect is rendered to the objects making them come alive.

DIGITAL ZOOM:

10X variable speed optical zoom with built-in macro delivers razor sharp images from a distance– or as close as 1.5 cm. A 20X digital zoom and 100X Super Digital zoom allow image capture from tremendous distances while retaining a good degree of sharpness.

USER FRIENDLY MENU SYSTEM

Zoom rocker control is used to make the different selections as they appear in the color viewfinder so you can pick settings from the menu without taking your eye away off the viewfinder. This design also keeps controls and switches to a minimum.

DOCKING STATION

Multi-function docking station offers even more sophisticated playback capabilities, plus advanced editing functions:

- R.A (Random Assemble) editing enables programmed rearrangement of up to 8 scenes at a time– just by marking the beginning and end of scenes.
- Insert editing and 4-channel stereo audio dubbing are possible using the docking station. Video insert allows new video to be inserted over prerecorded segments without disturbing the audio segment. When inserting audio, 16 bit (48kHz) full audio insert replaces recorded audio without disturbing the existing video track. In the 12 bit (32kHz) mode, 2 additional audio tracks can be added to the existing audio and mixed.
- In addition to the five special effects available through the docking station, there are 17 scene transitions that can be selected.

GR-DVM1

Same features as the GR-DV1 except it adds the world's first high-resolution 2.5-inch polycrystalline silicon TFT active matrix monitor. The high-definition 180,000-pixel LCD offers incredible viewing with a horizontal resolution of 400 lines.

$500 Rebate thru 12-31-97

QUICK DIAL 74

Panasonic
AG-DP800H SUPERCAM
S-VHS 3-CCD Digital Signal Processing Camcorder

- Three high-density 380,000 pixel CCDs with half-pitch pixel offset achieves over 750 lines of horizontal resolution, a S/N ratio of 60dB and remarkable sensitivity of f8 at 2000 lux. Additionally the Frame Interline Transfer (FIT) CCDs minimize vertical smear, so you maintain impressive picture quality even in very bright illumination.
- Digital Signal Processing circuitry provides four valuable benefits
  1) Consistently reliable up-to-spec performance.
  2) Fine adjustment of a wide range of parameters.
  3) Memory storage and instant recall of specific settings.
  4) More flexible and higher quality image processing, as well as easier maintenance.
- Six Scene File modes. There are two user modes for custom digital parameter settings including Horizontal Detail, Vertical Detail, Chroma and Dark Detail, and Color Correction. The four preset modes are normal, fluorescent, special and sparkling.
- In addition to regular AGC (Automatic Gain Control), Supercam has a Super High Gain mode. At F1.4 this enables shooting under illumination as low as 2 lux while retaining detail and color balance.
- Synchro Scan function allows flicker-free shooting of computer monitors. Electronic shutter increments can be set variably from 1/61 seconds to 1/253 of a second.
- Built-in internal time code generator lets you record with SMPTE LTC/VITC (Longitudinal/Vertical Interval) time code
- Two hi-fi stereo audio channels with a dynamic range of 80 dB, as well as two linear audio channels with Dolby NR. Normal/Hi-Fi recording is selectable. Uses XLR connectors to further ensure high-quality sound.
- Has a 26-pin connector on the back that outputs a composite or component video signal. This enables convenient backup recordings using an additional VCR equipped with a 26 or 14-pin connector
- Phantom power can be supplied to an optional microphone. Power can be switched off to prevent battery drain when not in use.

JVC® PROFESSIONAL
GY-X3 3-CCD S-VHS Camcorder

By employing professional camera technology in new economical ways, JVC has succeeded in bringing to market a professional 3-CCD camera that breaks all previous price barriers. The new GY-X3 delivers all the performance of a high end 3-CCD camera—high resolution, high sensitivity, low noise and natural color—at an incredible price.

Features:

- Three 1/3" CCDs provide a sensitivity of 2000 lux at F8.0, signal-to-noise ratio of 60dB and 650 lines of horizontal resolution.
- Low light capability allows you to shoot in as little as 4 lux and still have bright pictures with good resolution and strong, vivid colors.
- Full Auto Shooting (FAS) mode instantly adjusts to changes in shooting conditions. You can go from bright outdoors to indoor lighting and gain, iris, audio level and color balance will all be automatically adjusted.
- Variable Scan View allows flicker-free shooting of a computer monitor.
- Has a built-in 14:1 (5.5-77mm) continuosly variable speed zoom lens. The amount of pressure applied to the rocker determines the speed of the zoom. Both the iris and zoom can be controlled manually if desired.
- Built-in Control Track (CTL) time code generator as well as a time/date generator. The advanced CTL time code generator has a "scene finder" function that records an identification code each time you start taping. This lets you easily advance to the next or previous scene when using the JVC Edit Desk system.
- Large high resolution 1.5-inch viewfinder displays comprehensive status indicators.

GY-X2B 3-CCD S-VHS Camcorder

- Newly designed three 1/2" CCD image sensors deliver 750 lines of horizontal resolution & superb signal-to-noise ratio of 62dB
- New micro-lens technology provides exceptional sensitivity of F8.0 at 2000 lux and LOLUX mode lets you shoot with almost no light! Shoot superb footage with excellent color balance at a mere 1.5 lux
- Variable Scan allows flicker-free shooting of a computer screen
- Quick Record Mode - when turned on the camera is set to the auto iris even if lens is set at manual. Also activated is (ALC) Automatic Level Control and EEI Extended Electronic Iris which provides both variable gain and variable shutter. Now you can shoot continuously from dark room to bright outdoors without having to adjust gain, iris or ND filter.
- Full Time Auto White circuit lets you move from incandescent to fluorescent to outdoor lighting without changing white balance or the filter wheel. •Dual output system allows camera output to be connected directly to an external recorder

KY-D29 3-CCD Color Video Camera

One of the most sensitive cameras ever developed, the KY-D29 sets the standard for 3-CCD cameras and is also ideally suited for today's digital recording formats. With a sensitivity F11 at 2,000 lux, the KY-D29 can shoot in light as low as a remarkable 0.35 lux. It also offers a signal-to-noise ratio of 65 dB (with its DNR function on), and delivers 850 lines of horizontal resolution. The exceptional resolution and sensitivity of the KY-D29 are achieved by three new 760,000 pixel 2/3" interline transfer (IT) CCDs, the highest pixel count in the industry.

All-New Digital Signal Processing

- Advanced 14-bit Digital Signal Processing (DSP) and 3-dimensional Digital Noise Reduction (3D DNR) circuitry make this camera ideal for acquisition with todays popular digital formats, especially JVC's revolutionary new Digital-S.
- DSP within the camera provides astonishingly crisp, high-quality images, while minimizing analog distortions and noise. DSP also makes the camera more flexible and easy to use. It even smooths the transitions between gain and white balance settings so that viewers won't notice sudden changes of settings while the tape is rolling.
- Digital signal processing is enhanced with new 3D digital noise reduction circuitry to make it even more practical. By mixing multiple frames to cancel out random noise, then using motion detection to minimize lag. JVC's exclusive 3-D DNR produces dramatic results, far superior to any other DSP camera.

Super LoLux for Extremely Low Light Shooting

- Incredible new Super LoLux technology allows you to obtain a broadcast-quality picture in light as low as 0.35 lux. This extraordinary low light capability is the best ever achieved and is made possible by utilizing JVC's exclusive LoLux dual pixel readout technology (increasing gain by 6 dB without introducing noise) while at the same time doubling the pixel readout integration time to 1/30 second.

Versatile Docking Capability

- Extremely high quality 4:2:2 digital recordings can be made by docking the KY-D29 to JVC's Digital-S BR-D40 dockable recorder. This digital combo produces recordings far superior to any component analog camcorder, or 4:1:1 digital camcorder.The KY-D29 also docks directly to JVC's BR-DV10 DV-format and BR-S422 S-VHS dockable recorders andcan dock to Betacam SP recorders using an adapter.

Features for a Wide Range of Applications

- The KY-D29 is loaded with a wealth of high-performance features, making it ideal for a wide range of broad cast and professional applications. Built-in continuous auto black (CAB) continuously takes a black balance setting, and full-time auto white for continuous compensation of color temperature changes, balance the camera in real time, all the time. This allows you to concentrate on getting the shot, and not on adjusting the camera.
- Because different shooting situations require flexibility, the KY-D29 offers selectable vertical resolution. In the Standard Mode, the camera produces 380 TV lines of vertical resolution. However, in the 'V-Plus' high vertical resolution mode, the camera puts out 420 TV lines of vertical resolution, allowing you to increase vertical resolution without sacrificing sensitivity or lag, while maintaining 850 TV lines of horizontal resolution..
- Focusing is easier than ever with Accu-Focus. By momentarily decreasing depth of field, fast & critical focus is achieved instantly.
- Commonly used features can be activated without having to scroll through layers of menus. Features such as shutter control, variable scan, black stretch, black compress, CAB, iris modes, Accu-Focus, DNR and zebra are all menu-free. And for those times when events move so fast it prevents you from making any settings whatsoever, the KY-D29 's Full Auto Shooting (FAS) mode controls all of the camera's requiring you control only the focus, zoom and trigger.
- Other camera features include a built-in time/date, built-in zebra level selection switch, an f-stop display in the viewfinder, and a "battery remaining" display for Anton Bauer battery packs. A special Black Stretch/Black Compression circuit is also included.

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QUICK DIAL 74

Panasonic

AG-1980 S-VHS Hi-Fi Editing VCR

Incorporates advanced digital signal processing and digital noise reduction circuitry to deliver such high picture quality—that it's third-generation picture looks almost as good as first-generation offerings from other VCRs in it's class. In addition, the AG-1980 also features a full field digital TBC, insert and assemble editing, Hi-Fi stereo, quick response mechanism and a remote editing terminal.

- Still the only VCR in it's class to provide near frame accurate editing. When used with edit controllers from Videonics, FAST and FutureVideo, the AG-1980 achieves an accuracy of ± 2 frames And, the 5-pin edit terminal on the rear panel makes it very easy to set up an editing system.
- Performs all assemble and video insert edits as well audio video dubbing. Also has independent linear audio input and output for more flexible audio dubbing.
- Hi-Fi stereo audio with a frequency response of 20Hz to 20kHz and a dynamic range of 90dB. It also has Hi-Fi recording level control, headphone monitor terminal with volume control and a mic input terminal.
- Advanced dual-loading mechanism features a quick response time, requiring only 0.5 seconds for a picture to appear from Stop mode and 1.9 seconds from FF/REW.

• Digital Processing:
—Digital Comb Filter using advanced 3-dimensional system provides complete Y/C (luminance/chrominance) separation. This practically eliminates color and luminance blurring.
—Field coefficient Digital Noise Reduction (DNR) circuitry processes the Y and C signals separately, thereby boosting the signal-to-noise ratio and reducing noise during playback.
—Has a built-in full field TBC (Time Base Corrector) that eliminates even the smallest of jitter, skew, head impact error and color blurring. Invaluable for editing, the TBC helps maintain high picture quality even through the third-generation.
•Besides it's digital circuitry, the AG-1980 also features laminated video heads. Clearly superior to heads of conventional ferrite they provide richer, more vibrant color reproduction and a higher signal-to-noise ratio.

AG-DS545/AG-DS555
S-VHS Source Player/ S-VHS Edit Recorder

- Digital Signal Processing for improved picture quality, and for maintaining uniform picture quality during editing. Digital processing circuits include:
—Chroma Aperture Compensation (CAC): Eliminates color blurring and expands chroma bandwidth.
—Digital Noise Reduction (DNR): Processes Y/C signals separately to boost S/N Ratio by minimizing noise during playback.
—Digital Comb Filter: Advanced 3-dimensional system for total Y/C separation providing reduced color and luminance blurring
- Employs amorphous video heads that have a higher magnetic coercivity than conventional ferrite heads. Expanded frequency response from the amorphous heads enhances picture quality by minimizing color blurring.
- Built-in LTC/VITC (Longitudinal/Vertical Interval) time code reader/generators for absolute frame accurate editing.
- Two hi-fi stereo channels with a dynamic range of 90dB as well as 2 linear channels with Dolby NR. Each audio channel has its own input (AG-D555 only) and output with individual channel-level setting capability and XLR connectors.
- Performs audio split editing which lets you set the edit-in and edit-out points separately from those for video.
- 3-dimensional digital TBC provides excellent dropout compensation.
- IQ mechanism delivers precise, high-speed operation. The dual-loading system achieves high-speed response while protecting tapes and heads. The tape transport mechanism uses five direct drive motors, including two reel drive motors.
- Capstan Control System with large capstan spindle allows high-speed search at 32x normal speed (with color picture).
- 3 rack units high, they are compact for easy space saving installation. 19˝ rack-mountable with optional AG-M730.

WJ-MX20 Digital A/V Mixer

The WJ-MX20 has up to 298 wipes and fades plus RS-422 interface and GPI input for compatibility with a wide variety of editing systems. It also provides an extremely clear picture thanks to a 13.5 MHz sampling frequency, 460 lines of resolution and a signal-to-noise ratio of 50 dB. Other key features include Chroma Key, Scene Grabber and on-screen display settings.

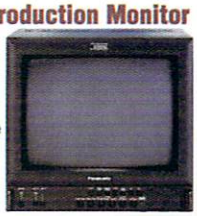
Digital Special Effects
- 5-step field strobe for clear still pictures with adjustable intervals. Field still can be switched to frame-still for increased vertical resolution.
- Field of frame freeze for clear still pictures
- Digital effects include: mosaic (size is adjustable in 5 steps), chroma (saturation levels are adjustable) and negative/positive video reversal

Wipe Pattern
- Up to 298 wipe patterns can be created from a combination of 23 basic and special patterns

WJ-MX50 Digital A/V Mixer

- Four input switcher and any two sources can be routed to the program busses
- Two-channel digital frame synchronization permits special effects in each A/B bus.
- Combination of 7 basic patterns and other effects creates 287 wipe patterns.
- External edit control input for RS-232 or RS-422 serial controls. Also has GPI input.
- Wipe boundary effects: soft/border (bold, eight background colors available)
- Digital effects: strobe, still, mosaic, negative/ positive, paint, monochrome, strobe, trail, and AV synchro
- Real-time compression - entire source image is compressed inside a wipe pattern
- "Scene Grabber" moves a pattern, upholding the initially trimmed-in picture integrity.
- Fade-in and fade-out video, audio, titles individually or synchronously faded.
- Down stream keyer with selectable sources from character generator or external camera.
- Eight memories for instant recall of frequently used effects.
- 8 preset effects include: Mosaic Mix, Position Stream, Corkscrew, Bounce, Flip, Shutter, Vibrate, and Satellite.
- Audio mixing capability of 5 sources with 5 audio level adjustments.

BT-S1360Y 13˝ Color Video Production Monitor



The BT-S1360Y is a full-function, professional 13˝ production monitor with a wealth of features. They include, superb 420-line horizontal resolution, S-Video input and output, advanced automatic white balance circuitry, blue-only mode, underscan and pulse-cross. All this, housed in a rugged, rack mountable metal-hybrid cabinet. So, for long-term reliability in any professional application, the BT-S1360Y is the ideal choice.

- Incorporates advanced, proprietary white balance circuitry that stabilizes white balance to provide outstanding picture performance automatically.
- S-Video input and advanced video circuit technology provides a remarkably sharp picture with over 420 lines of horizontal res.
- External sync inputs and outputs provide for synchronization with other equipment fed with the same sync signal.
- Blue Only mode plus Chroma selection provide a monochrome image for fine adjustment of contrast, brightness, chrominance & hue.
- Pulse Cross – displays horizontal and vertical intervals at the center of the screen so you can examine data in the blanking area and also sync/burst timing
- Two sets of video/audio inputs and outputs.
- Underscan –shrinks the scanned area of the picture tube approximately 5% enabling the entire active picture area to be displayed. Lets you detect intruding cameras and mike booms.
- Switchable color temperatures of 6500°K (broadcast standard) or 9300°K (for pleasing picture).
- Built-in speaker and headphone jack.
- Rack-mountable with optional BA-131 brackets.

BT-S 1360Y Olympic Demo Special!

We have a limited stock of BT-S1360Y monitors that were used by Panasonic exclusively at the 1996 Olympics in Atlanta. Used only by Panasonic engineers in broadcasting the summer games, these monitors are like new.

Demo Special $599 ($400 less than our regular selling price on this monitor)

QUICK DIAL 74

SONY

SVO-2000 S-VHS Hi-Fi Editing VCR

The SVO-2000 is a powerful, yet easy-to-use S-VHS Hi-Fi editing recorder. Two SVO-2000's combined with the optional RM-250 Edit Controller form a cost-efficient cuts-only editing system – with assemble, video insert, audio dub and program editing.

Superb Video and Audio Performance
- S-VHS format delivers 400 lines of horizontal resolution and consistent, clear image reproduction for superior editing results.
- Adaptive Picture Control (APC) for optimum picture. In record mode, APC automatically tests an inserted tape and checks the condition of the video heads. It then adjusts the recording circuitry to capture clear and crisp images. In playback , APC automatically sets the ideal balance of picture sharpness and clarity.
- Hi-Fi stereo recording system has a wide frequency response of 20Hz to 20kHz and a superb 90dB dynamic range, and individual recording level controls for the left and right channels.

Editing Features:
- The SVO-2000 has a Control-Edit 5-pin remote terminal that allows it to be controlled externally. Connects directly to the optional RM-250 for easy setup.
- Control-S input and output terminals allow two SVO-2000s to be connected for synchro editing–without the RM-250.
- RM-250 also offers program editing capability, which allows automatic sequential editing of up to 20 pre-assigned scenes.

SVO-2100 S-VHS Editing Recorder

Excellent Audio and Video
- S-VHS format provides excellent picture quality and consistent, clear image reproduction for superior editing results.
- For-channel audio recording. Two-channel Hi-Fi stereo with a superb 90dB dynamic range and a wide frequency response of 20Hz to 20kHz. Plus two editable longitudinal (normal) audio tracks. By using the AUDIO MONITOR selector, longitudinal audio or Hi-Fi audio can be monitored.
- Auto head cleaner removes tape residue preventing head clogging and deterioration of picture quality.
- Continuous auto repeat playback function.

Playback and Recording Functions
- By connecting multiple SVO-2100's via the VIDEO IN connector or THROUGH connector, they can simultaneous record the same program.
- When the Power On Recording or Power On Playback is set, it automatically starts recording or playing back a program the moment the power is supplied from externally connected equipment. This allows unattended automatic VTR operation.

Accurate Editing and Remote Control
- Optional SVBK-10 (RS-232C Interface Board with LTC time-code reader and generator) allows the SVO-2 100 to communicate with exter nal equipment such as computers or Sony's FXE-100/120 editing system.
- When used with a computer, the system can be used to create computer graphics, thanks to the SVBK-10 supporting commands fo Number Frame Record and Auto Edit.
- When used with the FXE-100/120, you have a cost effective frame-accurate (LTC timecode) editing system with full Assemble, Insert, Audio Split, A-roll, and A/B-roll editing.
- The SV0-2 100 can be operated with an optional foot switch. Recording can be started or stopped from the external foot switch connected to the Foot S\N jack of the SV0-2 100. During recording, the Rec Tally signal can be output from the Foot SW jack. The Rec Tally signal is useful when used with a monitor with Tally IN capability.
- Optional SVRM 100A or RM-V200 Remote Control Unit allows remote control of the SVO-2100's e basic functions.

QUICK DIAL 72

JVC PROFESSIONAL

SR-S365U S-VHS Recorder With RS-232 Control

With high-resolution S-VHS, jog/shuttle search and built-in RS-232C interface, the SR-S365U is the foundation of an affordable pro editing system. Convenient functions such as insert/assemble editing and Random Assemble Editing let you produce edited programs right away. And since the SR-S36SU is designed for use with the professional RM-G800U Edit Controller, putting together a high-performance editing system with all the benefits of precision CTL time code editing has never been easier.

- S-VHS picture quality with 400 lines of horizontal resolution plus noise reduction circuity keep pictures clear and sharp.
- With just the RM-G800U and a pair of SR-S365U's, you have the most economical and productive time code editing system available. Edit video independently of the audio, adding new audio later if desired. For faster, more flexible editing, build a mixed system, using the powerful BR-S800U VCR. Either way, you'll get the benefits of CTL time code.
- Two channels of Hi-Fi for dynamic, high-quality stereo sound and an editable monaural (normal) channel .A new self dubbing function allows you to copy the existing Hi-Fi track onto the normal audio track.
- Built-in time code generator/reader utilizing JVC's CTL Time Code System records time code data on the control track for fast and accurate access to any frame. Far superior to conventional control track counters that lose reference when the tape is removed from the machine. CTL Time Code can also be post-striped without sacrificing the audio track.
- Built-in RS232C interface so you can connect it directly to a PC. Compatible with the many RS-232C-based editing controllers available today.

Other Features
- Flying erase head • Hi-Fi audio recording level controls & indicators
- Headphone connecter with volume control
- Automatic head cleaner • Digital hour meter indication

VES-58 EDIT-DESK S-VHS Editing System

BR-S500U Edit Player • BR-S800U Edit Recorder • RM-G800U Edit Controller

Fast, accurate and professional editing is affordable. Linked via JVC's proprietary control bus, these three units offer all of the editing features professionals have come to expect. The VCRs feature a fast, heavy-duty tape drive and the built-in CTL (Control Track) time code provides unparalleled accuracy and flexibility. Best of all, the VCRs feature an open architecture for easy system upgradeability.

SUPERB VIDEO PERFORMANCE

Picture improvement technologies like digital Y/C separation, chroma noise reducer, chroma aperture correction and a 3-line cross-talk cancellation all combine to offer outstanding image quality, even when dubbing down multiple generations.

CONTROL TRACK TIME CODE SYSTEM

JVC's CTL (Control Track) Time Code System records absolute tape address information (hrs: min: sec: frames) on the control track, for fast and accurate access to any frame on the tape - far superior to control track counters that lose reference when the tape is removed. CTL Time Code can also be "post striped" during recording

FOUR-TRACK AUDIO

Two Hi-Fi stereo channels with a wide frequency response and dynamic range of 80 dB and two linear tracks. The BR-S800's linear tracks can be dubbed independent of each other and of the video - ideal for adding background music or sound effects. There are 2 audio level meters, switchable between the Hi-Fi and linear channels. Separate input and output terminals are provided.

OPEN ARCHITECTURE

Two plug-in extension slots on the rear panels of both VCRs accept optional expansion boards. To build a PC-based edit system, add the SA-K27UA (RS-232C) board. To use with RS-422-based edit controllers, plug in the SA-K26U (RS-422) card. Other boards include the SA-N50U DNR board with time base stabilizer, and the SA-R50U VITC/LTC time code generator/reader.

RM-G800U EDIT CONTROLLER

- Features automatic assemble and insert editing, audio insert editing, as well as preview/review for checking edits before and after editing, and go to for direct access to any edit point. A capstan bump function is provided to assure greater edit consistency.
- Has two GPIs allowing automatic triggering of special effects generators, switchers or audio mixers.
- 8-digit LED counter indicates all edit data in either the TC or CTL mode. Switchable between player and recorder.
- Precise and responsive jog wheel makes it easy to locate any frame and can also be used to enter and trim edit points

RM-G805U A/B ROLL EDIT CONTROLLER

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In the past if you wanted to isolate selected objects in a video sequence for compositing with other video sequences you had two choices. Either you rented a studio and shot hired talent in front of a blue screen or you masked each individual frame by painting over the area that you wanted to protect or cut out. Now wouldn't it be great if there was a tool that automated the process for you— right from your desktop?

QUICK DIAL 731

AutoMedia AutoMasker

The World's Only Automated Video-Object Masking Tool

AutoMasker is the world's only automated software tool for accurate isolation of items and figures in a video clip. Using intelligent tools that quickly mark the border of an object in a key frame, AutoMasker determines the exact border in subsequent frames even when the object is multi-colored, changing its geometry or moving over a colorful and dynamic background.
Using innovative break-through technology, AutoMasker enables automated masking, isolation, painting, extracting and insertion of selected objects into video streams at a fraction of the cost incurred using the conventional frame-by-frame painting method. Selected objects can be modified within AutoMasker or in combination with other digital video specials effects or compositing software. AutoMasker is very flexible and works on just about any platform - SGI, Windows 95 and NT4.0. It works with standard file formats including: TGA, BMP, QuickTime and AVI. The tools are powerful enough to work, accurately, even on fields for precise masking results.

- Greatly increases masking productivity
- Automates masking of video objects even when they are multi-colored, changing their geometry and moving over colorful and dynamic backgrounds.
- Easy object selection in first frame and exact boundary tracing in subsequent frames
- Easy modification to object border and controlled anti-aliasing
- Independent automatic object and background color effects
- Simultaneous masking of a number of objects and objects with holes
- Create mask or colored output movie, including optional alpha channel
- Compatible with most file formats including TGA, VDA, ICB, VST, AVI, FLM, PCS, DCX

Results can be used with most third-party applications.

PINNACLE SYSTEMS GENIEPLUS

Post-Production System on a Single PCI Card

Based on Pinnacle's EMMY award-winning special effects technology, GeniePlus is a complete desktop post-production system that includes a 3-D DVE, switcher, advanced character generator, fast still-store and a dynamic paint system – at a price you can afford. Equipped with an incredible array of features on a single PCI card, GeniePlus lets you create your own stunning effects, including page turns, water ripples and spheres with uncompromised 4:2:2 internal digital quality. The full-function 3-D DVE provides ultra-smooth motion and no breakup (pixelation) when pictures are sized or rotated. You'll be able to create exciting warp effects with lighting, trails, shadows and borders faster and more easily than ever before.

Switcher/DVE:
- Designed to make your A/B roll editing effortless, the GeniePlus switcher has two live inputs (with built-in frame synchronizers), two full-color frame buffers for use as still-stores, and built-in matte and black generators. Internal linear keying allows multiple layers to be created in a single pass, and Pinnnacle's unique Genie Wipes and Alpha Wipes create visually stunning effects.
- Over one hundred effects and transitions that can be customized to instantly add spark and style. These include single-pass page turns, warps, ripples, spheres, trails, shadows and a wide variety of borders. You also have control over lighting and virtually all the controls can be keyframed. Create incredible moves and even use keyframes to have an object track an element on your screen.
- Full spectrum chroma keying with amazing quality. Quickly choose the exact color you want to key out.
- Add warp shapes to the foreground image and deliver high end quality never before available at such a low price point. New warp shapes including hourglass, hexagon, balloon, diamond, octagon, and bumps.
- Need a glint to float across the screen or title? How about a spot light to enhance the scene? Maybe you need to darken all but a certain part of the screen to point out an element? They are all yours with the new Manual Highlights controls.

Paint:
- Includes the same excellent paint program that ships with Pinnacle's Alladin. It works at DI resolution (720 x 486) and comes with tools optimized for video graphics. Includes a de-flicker filter and also lets you batch convert a sequence of graphics files from different formats and scale them for video use. A pixel interpolation algorithm smoothes the enlarged pixels and anti-aliased lines without causing excessive blurring.
- Cursor is invisible. As a result, brush strokes look like animations, and may be used for example to illustrate sports moves, show an itinerary over a map or illustrate weather reports.
- A text buffer lets you use text in a variety of ways. Any font available to Windows can be used for Paint, and text may be scaled, rotated, etc. Effects like shadows and outlines are easily applied and there are many options for the color of the text.

Character Generator:
- GeniePlus comes bundled with Inscriber CG, the standard for character generation. Inscriber supports multiple fonts (TrueType or PostScript), a great variety of text styles, geometric objects, various backgrounds, and different color combinations.
- Styles include a combination of settings such as emboss, glow, shadow, outline, gradient, and transparency.
- Import regular ASCII text files. Adjust text to the screen with automatic horizontal and vertical centering tools. Lines can be automatically abutted, aligned to the right or left, or placed anywhere on screen. Logos can be imported and placed at will, and backgrounds can be comprised of graphics files, solid colors, gradients or live video.
- Variable speed rolls and crawls are possible. The pages are set in Inscriber, and GeniePlus handles the smooth motion. CG pages can be used directly from Inscriber or saved to be used by the DVE. Foreign language special characters are also available.

Other Features:
- Compatible with Windows 95' and Windows NT 4.0.
- Includes GPI control for integration with stand-alone editors. And since most PC-based editing systems offer a direct interface to seamlessly control GeniePlus, you'll can focus on your production, instead of your tools.
- Has connections for six video inputs—three composite and three S-Video —two of which may be switched at a time. (Accepts NTSC or PAL signals). S-Video and composite sources can be mixed. There is also an external sync input with loopthrough. The board processes video in true broadcast quality, conforming to CCIR 601 standards.

TURNKEY GENIEPLUS COMPUTER SYSTEM

INCLUDES: • Pentium 166 MHz CPU • 220 Watt 6-Bay Midtower Case • 3.5" Floppy Drive • 32 MB RAM
• 256K Cache RAM • Diamond Stealth64 2MB 32-bit VGA Display Card • Seagate Medalist 2.5 GB IDE Hard Drive
• Creative Labs Soundblaster 16 Audio Card • Altec Lansing ACS-51 Amplified Computer Speaker System
• Teac 8X-Speed Internal EIDE CD-ROM Drive • Focus 2001A Keyboard • Logitech 2-button Mouse • Windows 95
• Princeton EO15 High Resolution 15-inch Monitor ***plus*— card and software installed** **$6495.00**

QUICK DIAL 731

ANTEX StudioCard™

4-Channel Digital Audio Card for Windows

The next generation in digital audio for the desktop, StudioCard is a premium-quality digital audio adapter with advanced features, studio-quality specs and professional connections. Unmatched in quality, flexibility and expandability, it features 4 tracks of audio sound and real-time digital mixing capability,making it the ideal board for musicians who want digital multitracking and mixing on their PC, or producers looking for a versatile board for post-production digital audio editing and uncompromised audio quality. StudioCard is Windows 95' plug and play compatible plus includes drivers for Windows NT as well.

- Key to StudioCard's amazing sound is the marriage of a low noise analog I/O section and high quality A/D and D/A converters. A PCI-based 32-bit memory mapped board, it delivers less than 0.003% total harmonic distortion and 92dB dynamic range. Plus, a PLL-based sample clock generator that can be locked to an assortment of clock sources.
- Incorporates a programmable 32-bit 40 MHz DSP and pro connections like 4 independent balanced analog I/Os (+4dBu or -10 dBV) and AES/EBU or S/PDIF digital I/O. It also offers a MIDI port with deep buffers and time stamping. No matter which type of equipment you have StudioCard will integrate into standard studio environments.
- Compatible with film, video or MIDI. StudioCard offers synchronization via SMPTE, MTC, word and pixel clocks, and composite video. Plus, the StudioCard not only reads SMPTE timecode, but generates it as well.
- Unique to the Antex design is StudioCard's multiple adapter capability. This means you can install multiple StudioCards in a single computer for up to 16-track recording. Start with one StudioCard today - add more StudioCards tomorrow. Also included is an on-board SPx expansion connector for plugging in optional daughtercards for compression or enhanced DSP operations.

QUICK DIAL 731

TRUEVISION

TARGA1000/2000

PCI Video Capture Boards for Windows and Macintosh

The TARGA 1000 and 2000 are an easy and affordable way to transform your computer into a powerful digital editing system. Along with their high-speed PCI interface, both the TARGA 1000/2000 incorporate all you need to create spectacular multimedia content. They support NTSC and PAL standards and let you capture, edit and playback full-motion, full-resolution digital video with fully synchronized CD-quality audio. Designed for high performance PCs they deliver incredible processing speed for video and audio effects, titling and compositing.

TARGA 1000/2000 PCI for Mac provides a flexible "plug-and-play" solution for video authoring, 3D animation and multimedia applications. Work on animation projects with software like Strata Studio Pro or Specular Infiniti-D and video or CD-ROM authoring with Adobe Premiere and After Effects 3.0.

Advanced DVR (Digital Video Recording) Technology:

The TARGA 1000/2000 employ advanced DVR technology to deliver superior video performance. Unlike other systems that treat each frame of video as a block of data tied to a specific order of steps such as decompression-resize -compress-write to disk, DVR writes an entire frame of uncompressed video to the huge on-board 20 MB RAM buffer of the TARGA 2000 (8 MB RAM buffer of the 1000.
This is a "memory-centric" approach, in which all board functions share access to the video buffer. For example, a DSP (digital signal processing) chip can scan for additional data, such as matching audio samples to video frames to help maintain lip sync. Transitions, filters, effects and/or resizing can also be applied while the uncompressed frame is in TARGA memory. The final output is then compressed and written to disk. Video data only crosses the bus twice –both times in compressed form. On other systems, the video data path is longer and more complicated. Video crosses the bus–twice uncompressed and twice compressed.
The DVR architecture can access information in its memory buffer at a speed of 230MB per second. Video runs only at 2 to 7 MB per second, so the TARGA boards have all the time needed to decide what to do with each frame. And,because uncompressed data is never sent across the bus, bottlenecks that plague other systems are eliminated.

TARGA 1000/2000 Features:

- Record and playback video directly to/from hard drive at 50 fields/sec –PAL, 60 fields/sec–NTSC. Video is stored and played back at the highest resolution for each format (768 x 576 –PAL, 640 x 480 –NTSC). Compression can be adjusted on the fly to optimize for image quality and/or minimum storage space.
- Audio is digitized at 44.1KHz or 48KHz sampling rates, for professional quality stereo sound. Since all audio and video processing is done by on-board DSPs, you are assured of perfectly synchronized sound and images.
- Equipped with composite and S-video inputs/outputs. Also available with component input/output (TARGA 1000 PRO).
- Genlock using separate sync input for working in professional video suites
- Optimized to work with Winsows NT-based software (Adobe Premiere 4.2, in:sync Speed-Razor MACH III)

Macintosh version only:
- Video capture plug-in for Adobe Photoshop.
- Quicktime 2.1 compatible, can be used directly out of the box with many applications.

TARGA 2000 Additional Features:

- Accelerated Windows 3.11 and Windows NT 4.0 display drivers offer integrated, true-color (24-bit), non-interlaced desktop up to 1152 x 870 pixels.
- View your desktop and video-in-a-window on your non-interlaced monitor while the processed video is output at NTSC or PAL to a video monitor and/or a VCR.
- Provides a large work area for displaying video, as well as editing application controls. Any part of the display (or even the whole image) can be recorded to tape (video-out-of-a-window).
- Equipped with composite and S-video inputs/outputs Also available with component input/output (TARGA 2000 PRO)

TARGA 1000 for Windows or Macintosh PCI (specify)	1499.00
TARGA 1000 PRO (Component input/output) for Windows or Macintosh PCI (specify)	1799.00
TARGA 2000 for Windows or Macintosh PCI (specify)	2899.00
TARGA 2000 PRO (Component input/output) for Windows or Macintosh PCI (specify)	3299.00

TARGA and DPS Windows NT Turnkey Systems:

- 220-watt, 6-bay midtower case
- PCI motherboard with 512K pipelined burst cache
- Pentium 166 MHz processor
- Diamond Stealth 3D 3400XL1 4MB VRAM PCI display card (Systems with in:sync Speed-Razor MACH 3.5 receive a 9FX Motion 771 4MB VRAM PCI display card).
- 32MB of EDO (Extended Data Out) RAM (Premiere systems only)
- 64MB of EDO RAM (Speed Razor systems only)
- Quantum Fireball 2.5GB IDE system drive
- Seagate (Barracuda) 4.2GB SCSI-3 Ultra Wide hard drive
- Adaptec AHA-2940UW Ultra Wide SCSI-3 controller card
- MediaTRIX AudioTRIX Pro DSP-equipped 16-bit audio card (for DPS Perception systems only)
- Teac CD-512e 12X EIDE internal CD-ROM drive • 3.5" floppy drive
- Altec-Lansing 300.1 three-piece deluxe speaker system
- Princeton Ultra 17+ high resolution 17-inch multiscan monitor
- Focus 2001A keyboard • Microsoft MS mouse • Windows NT 4.0 operating system software

TARGA 1000/Adobe Premiere 4.2	**$5995**	**TARGA 2000/ Adobe Premiere 4.2**	**$7795**
TARGA 1000 PRO/ Adobe Premiere 4.2	**$6295**	**TARGA 2000 PRO/ Adobe Premiere 4.2**	**$8195**

***PVR-2500/AD-2500 w/Adobe Premiere 4.2**	**$6995**
***PVR-2500/AD-2500 w/in:sync Speed-Razor**	**$7995**

*PVR-2500 System Notes: 1) Does not include Adaptec SCSI-2 controller card (has built-in SCSI-2 port)
2) Includes Seagate Barracuda 4.2GB Narrow hard drive (doesn't accept Wide drives)

Expansions and Upgrades for all Systems:

Full Tower Case (10-bay)	add **100.00**	Super Tower Case (12-bay)	add **200.00**
Pentium Pro 200 MHz processor (256K cache) and Pro motherboard	add **750.00**	With 512K cache	add **1200.00**
Dual Pentium Pro 200 MHz processor (256K cache each) and dual Pro motherboard			add **2000.00**
Seagate Barracuda 9.1GB Ultra Narrow (for DPS)	add **800.00**	Seagate Barracuda 9.1GB Ultra Wide drive	add **900.00**

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16.8GB Raid Array (Dual channel with four 4.2 Ultra-Wide Drives—two drives per channel)	5695.00

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DIGITAL PROCESSING SYSTEMS INC.

PVR-2500 'Perception'

Digital Video Recorder

The Heart of an Advanced Digital Audio/Video Workstation

The PVR-2500 offers powerful features for awesome animation, morphing and rotoscoping capabilities. With features like 720 x 480 resolution, 10-bit 2x oversampled video encoding, better than D1 scaling, component and S-Video outputs, multi-processor support and integrated FAST SCSI-2 controller, it empowers your computer to rival the finest professional production studios.

- The PVR-2500 is a full-length PCI card with a FAST SCSI-2 controller. Because the SCSI controller is integrated with the PVR-2500, video data never has to go over the PCI bus during playback. This avoids the bottlenecks found in systems which use the computer's hard drive for video storage.
- Exclusive multi-format virtual file system ensures complete integration with your application. Any acquired video or computer generated Perception video clips appear simultaneously in many different file formats including TARGA, SGI, BMP and IFF.
- Compatible with Lightwave 3D, Softimage, 3D Studio MAX and others. Perception also comes bundled with DPS Lockstep software to provide significant control over 3D Studio MAX.
- 10-bit 2x oversampled encoding for 720 x 480 broadcast quality resolution. Dynamic range is in excess of D1 scaling so images are brighter, have more color and greater spatial resolution than ever before. Component, composite and S-Video outputs are provided via the included breakout cables.

AD-2500 Component Video Capture Card

Coupled with the AD-2500 live video capture daughter card, the PVR-2500 becomes a broadcast-quality digital disk recorde delivering unsurpassed picture quality .

- Has component, composite and S-Video inputs for real-time recording. Captured video can also be exported as sequential RGB files for rotoscoping and other compositing applications
- Sophisticated automatic entropy prediction circuit analyzes incoming video and dynamically calculates the optimum amount of compression on a field-by-field basis—even during real-time recording. You also have complete manual control over compression level/quality settings.
- Runs under Windows NT 4.0 on computers with Pentium, DEC Alpha or MIPS processors. Perception utilizes NT's native support for multitasking and multiple processors, allowing use with the most powerful computers.
- Perception performs real-time interpolation of 30 fps video to 24 fps film rates or vica versa. This means that it is also at home on the Hollywood movie set as well.
- VCR-like controls on the Perception's GUI simplifies the task of batch digitizing and recording. In this mode, the PVR-2500 can read SMPTE time code from the source deck.
- Use with Windows NT compatible sound card while synchronization of audio and video is maintained by the PVR software.
- Use with third party editing software such as Adobe Premier or in:sync Speed Razor MACH 3.5. A system equipped with the PVR-2500, AD-2500 capture card, a sound card, editing software & one or more SCSI drives becomes a non- linear editor of unparalled performance – at an unbeatable price.

FX-2500 Perception Effects Accelerator

The FX-2500 significantly reduces the time required to render complex non-linear transitions. Although it doesn't deliver real-time transitions, it significantly improves the productivity of non-linear editing systems by dramatically speeding up the rendering time for many effects and transitions.

- With a stand-alone PVR-2500 a 30 frame dissolve can take minutes to render, even with the fastest PC, because the host CPU processes source frames on a pixel-by-pixel basis. The F/X 2500 reduces the waiting to time to under 10 seconds.

DPS SPARK

Spark is a DV editing system designed exclusively for use with DV camcorders and VCRs. An affordable direct DV editing solution, all you need to edit DV is a properly equipped computer and a DV camcorder. Digital audio and video are transferred from your camcorder to your hard drive in real time, using the supplied FireWire cable. Non-linear editing on the computer is facilitated with a full version of Adobe Premiere 4.2 editing software which is optionally included. Once content is edited, simply transfer back to your DV camcorder using the bi-directional fire wire cable. Since the video signal remains digital from start to finish, there is no generation loss for a finished product which rivals Betacam SP at a fraction of the price!

DV2000U "SPARK" DV Board.....599.95
DV2000 "SPARK" DV Board With Full Version Adobe Premier 4.2.....849.95

in:sync SPEEDRAZOR MACH 3.5

Digital Video Editor for Windows NT

The ultimate digital video editing software, Speed-Razor MACH 3.5 edits full screen, 60 fields per second, CCIR 601 broadcast-quality video. Designed for the DPS PVR-2500 and Truevision's TARGA series video capture cards, Speed-Razor MACH 3.5 is the fastest and most powerful tool for editing and compositing video clips, animations, stills, music and sound effects.

Speed-Razor features infinite video, audio, transition and effects tracks and comes with Razor Blades—transitions and effects to enhance your production. There are preset tumbles, fades and wipes which you can easily customize and save as new presets. In addition, there are special image effects which are unquestionably the highest quality of any system—analog or digital. Speed-Razor sports anti-aliased 3D DVEs, an infinite channel chroma keyer and an excellent character generator. Use the included effects or transitions, layer them to create new ones, make your own grayscale bitmaps to use as transitions, or use 3rd party plug-in effects—the flexibility is yours.

There are two user definable resolution modes (thumbnail and final) to facilitate editing. The thumbnail mode allows you to use Speed Razor in the field on a laptop then transfer the project file back at the edit suite and automatically recapture and re-render the entire project at final resolution.
RS-422 control and batch capture module allow you to automate video capture via SMPTE time code, so digitizing video and audio is simple and painless. In fact, with the innovative "Virtual Editing" function you can actually edit your project, complete with effects and transitions—before you've digitized a single frame of video.

COMPOSITING:
- Infinite number of layers of video clips, still and animations can be composited together
- Handles any resolution from Betacam (720 X 480) up to Omnimax film (4000 X 4000)
- Video clips can be combined using an alpha channel, key color transparency, still or traviling mattes

FILE FORMATS:
- Reads and writes ANI files (created by DPS' PAR), PVD files (Perception), DVM files (TARGA 1000 and 2000) and sequences of TARGA files
- Convert files between any of the following formats: ANI, PVD, DVM, AVI, BMP, TGA, FLC, FLI, WAV
- Project-based Library for organizing your work

AUDIO:
- Handles audio up to DAT (48 kHz) quality
- Infinite number of audio tracks for multi-layer audio mixing

EFFECTS:
- Blur (circular, gaussian, fast), tint, brightness adjustment, chroma key, crop, displacement, emboss, freeze frame, glass texture, greyscale, invert, loop, matte, pixelate, repeat fields, scale, transparency, strobe, turn red/green/blue
- 3D DVE (translates and/or rotates an image in three dimensions on the X, Y and Z axis)
- Sets a color channel to an assignable value)
- Titles (full blown CG using any Windows font in any color with automatic drop shadow)
- Sub-pixel rendering for incredibly smooth motion
- Effects can be applied to infinite sources

TRANSITIONS:
- Includes over 100 grayscale image transitions, crossfades, luminance fades, fade to/from black, fade to/from white, push, twirl, twist in/out tumbles, flip, turn, scale (zoom)
- Transitions can be applied between infinite inputs

in:sync Speed Razor MACH 3.5 for DPS PVR-2500 and Truevision TARGA Series.....CALL

QUICK DIAL 732

NewTek LIGHTWAVE 3D 5.5

3D Animation Software

Explosive ideas that test the boundaries of 3D animation deserve a program that can realize them in exciting new ways. Creating worlds that no one's ever seen. Creatures that have never walked the Earth. Special effects, games, web sites - all creations that exist only in your mind. Until now.
LightWave 3D gives you an easy way to create the most sophisticated 3D animation imaginable, with formidable capabilities from an incredibly powerful, professional animation system. Its intuitive, complete, easy-to-use layout and modeling system delivers the ultimate in creative control, not to mention flexibility - the likes of which you've never seen. And unparalleled features for modeling, surfacing, lighting and animating are right at your fingertips. LightWave 3D packs a wallop of a punch. Raytracing, motion blur, MetaMation, inverse kinematics (IK), Bones, field rendering, lens flares, compositing - they're all here. LightWave 3D's OpenGL and Quickdraw 3D support mean you can see your creations in real time.
What's more NewTek improved LightWave 3D's anti-aliasing quality by 300 percent over earlier versions they also improved the accuracy of IK, and increased speed by 500 percent. Its robust plug-in architecture means you can choose feature options that match the way you work. And it's exceptional image quality and throughput make LightWave 3D an ideal choice for special effects in television, film, commercial work, web page development, graphic arts, video games and education.
With all of this it's no wonder you can find LightWave 3D in more Hollywood animation suites than any other 3D program.
Yet you can get all of LightWave 3D's great features and exceptional performance for a price far more affordable than you dreamed possible. In fact, LightWave 3D costs up to 75 percent less than comparable programs.
It's no use having a great program if you can't run it. So LightWave 3D is available for all of the most popular platforms: Windows 95, Windows NT, Power Macintosh, DEC Alpha, SGInc. and Sun Microsystems.
Throw in over 40,000 loyal artists who share what they know, and you won't be able to wait to get your hands on LightWave 3D. After all, by giving many 3D designers their start, and moving them from the garage to their own special effects companies, LightWave 3D has changed people's lives.

Open GL Support
- OpenGL or QuickDraw3D supports real-time shaded views and displays many surface attributes Preview objects as solid or see-through wire frames in the OpenGL preview window.

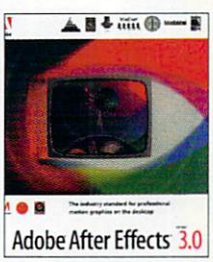
MetaNURBS
- High-speed meta modeling for mind-boggling creations. LightWave's unique MetaNURBS is an elegant and easy way to model objects by transforming polygonal models to NURBS surfaces in real time. MetaNURBS delivers incredible detail and flexibility, so you can create smooth organic objects even though the model is actually based on polygonal geometry. Modeler lets you switch seamlessly between polygonal modeling and the organic power of NURBS for the best of both worlds.
- Dragnet and Smooth Scale - designed to help you work with organic models. Both are especially great for MetaNURBS objects. Plus the new extender plug-in gives you added control over the objects you create with MetaNURBS.
- Also incorporates traditional spline -based modeling tools. (Brezier and hand drawn curves automatically converted to polygon surfaces). The spline modeler lets you create any shape you can dream up in incredible detail and lets you endlessly modify your creations.- there's nothing you can't create.

Boolean Tools
- Boolean tools to cut, slice and combine objects. With LightWave's Boolean tool, things take shape fast. The Boolean principle is simple. Add. Subtract. Intersect. Take simple primitives, like spheres or cubes, and create complex shapes quickly and effortlessly.

Other Features
- 3DMF Support on PowerMac
- MetaBalls modeling plug-in • New MetaForm2 plug-in
- Surface editing directly in modeler
- Graphics tablet support standard
- Randomization for bevel and array tools
- Two way data sharing between layout and modeler
- Dramatically increased graphic redraw speed
- Easy-to-use lasso style zoom
- Hundreds of polygon modeling tools, including extrude, lathe, bevel, mirror, clone, quantize, jitter and subdivide.
- Postscript and TrueType font compatibility
- Draw freehand shapes or trace over images
- Work among ten different layers
- Multiple view options
- Macros to automate complex functions
- Multiple levels of undo and redo
- Automatic standards - design in metric, English or SI measurement units
- Mathematical functions can be typed directly into numeric requesters
- Translator loaders/savers for these formats: 3D Studio, AutoCad (DXF) and Alias/Wavefront (OBJ).

Adobe AFTER EFFECTS 3.1

Post-Production Tool for Compositing, Motion Graphics and Special Effects on Windows and Macintosh



After Effects 3.1 is the industry standard for professional motion graphics created on Windows-based PCs or Macintosh. It provides the power and breadth of features required by film makers, video producers and editors, graphic designers, multimedia professionals and web developers to produce high-end, unlimited composites, fluid animations, and sophisticated special effects. Available for Macintosh and Windows, After Effects 3.1 is tightly integrated with the Adobe product family, so if you work with Premier, Photoshop, or Illustrator, you already have the skills, shortcut know-how, and hardware to make After Effects a seamless, powerful extension of your creative arsenal. Turn your computer into a motion-graphics studio and put awe-inspiring action into your work.

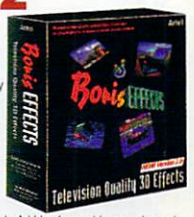
SOPHISTICATED COMPOSITING:
- Combine digitized materials from any source to create sophisticated composites and traveling mattes using transparency, complex masks and alpha channels. Animate Photoshop layers and Adobe Illustrator art with new direct import capabilities.

SPECIAL EFFECTS:
- After Effects lets you use plug-in effects ranging from precise color correction filters to wipes and blurs, and even Photoshop filters. You can also animate each effect independently over time.

MOTION GRAPHICS:
- Position and animate layers with unlimited keyframes and sub-pixel accuracy. View and edit your spline-based motion paths on-screen. Ensure super smooth motion at any speed with field-rendering and true motion blur.

AFFORDABLE QUALITY:
- With After Effects you can create anything you can imagine. Get top-quality motion graphics for film, broadcast or CD-ROM—at a fraction of the cost of a dedicated hardware system.

Artel Boris Effects 2.2



A software-based multi-channel DVE generator, complete with intraframe interpolation, matte manipulation, and multiple keyframes, Boris Effects allows you to create your own custom moves. Boris ships with a keyframe library of over 150 customizable effects including cubes, picture-in-picture, chroma keying, tilting,soft edges, masks, filters and compositing of unlimited track of video and graphics. Effects can be saved or used with different video source clips. Easily create 3D flying logo effects from PICT, TIFF, bitmap, Video for Windows and QuickTime files using an embedded alpha channel. Other features include borders and drop shadows which can be colorized and made soft and translucent, control over camera position and light source with specular highlights. Based on a plug-in architecture, Boris is compatible and closely integrates into Adobe Premiere and After Effects, Media 100, Avid MCXpress, in:sync Speed Razor, FAST VM-Studio Plus and D-Vision Online desktop non-linear editing systems. Once installed in your system, it appears in the transition list and is easily accessed from their transitions and filters menu. It is not a background application and no extra memory is required.

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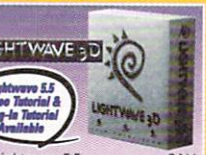

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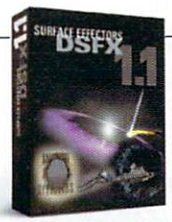

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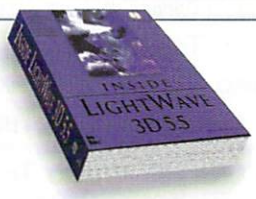

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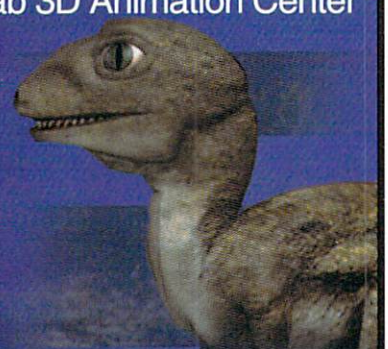

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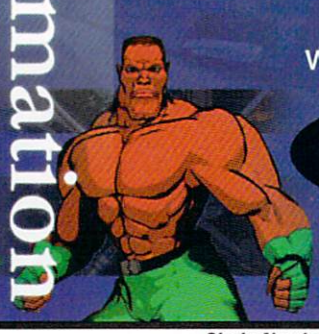

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MOJO

MUSINGS FROM OUR ACE LIGHTWAVE ANIMATOR

Devil With a Silver Dress on

Why I Hate Circuit City

I know this column is usually reserved for insightful musings, witty banter, and scathing commentary but this month I'm steering it in a slightly less lofty direction. Someone's messing with my new toy and I'm pissed.

Men don't understand women, our jobs give us stress, and our cars break down; in the end we can *only* trust in our toys to give us unconditional joy. God pity the poor fool who tries to take that away!

This brings me to the Storm Troopers at Circuit City. In conjunction with a braintrust of Los Angeles entertainment lawyers, they've developed a scheme to potentially screw with the new DVD format. For those who have not yet experienced it, DVD truly is ***tha' bomb!*** When I read about it a few years ago I held out on collecting laser discs to see if it would be as good as promised. It is!

The picture is astounding, the sound clear and dynamic, and it's all on an itsy-bitsy CD. Don't let anyone spout any mumbo-jumbo about artifacts to you—I watch DVDs on a 10-foot screen every day and it really looks gorgeous. I've never collected movies, but with this kind of quality (at $20 a pop, no less) I've now got enough to open my own rental outlet.

The format has received excellent reviews and sales have been steadily increasing. Just as the Christmas sales were about to skyrocket, a man named Richard Sharp held a press conference to announce a new, competing, DVD-based format: DiVX (it stands for Digital Video Express and is pronounced "div-ex").

When you buy a movie on DVD, you pay your 20 bucks, take it home, and watch it whenever you like, as often as you like. Simple, right? That's the way the world works when you buy something!

DiVX, on the other hand, is a pay-per-play scheme. With this format, you buy that same movie, but as a *digitally encrypted* DVD, for five bucks. When you stick it in your special DiVX DVD player (costing $100 to $150 more than a regular DVD player), a clock counts down from the moment you press play; thus begins your 48-hour "rental" period. When that time is up, you can't watch the movie (or any part of it) again until you instruct the machine to bill you for another two-day "rental" period (about $3). The player (which has an internal modem and must be hooked up to your phone line) keeps track of everything you watch and automatically calls the DiVX center once a month to log your viewings and send you a bill. If you watch the movie enough times and pay a certain amount (around the price of a regular DVD), it may be unlocked permanently. (The details of exactly how this will work are still vague.)

Are they insane?! Who wants to keep track of all this just to enjoy movies at home? I don't want a library of software that I don't really own and I'll be damned if I want a bunch of greedy lawyers keeping detailed information about my viewing habits (which they say they won't give out, but won't comment on their own commercial intentions).

Of course, encrypted DiVX DVDs will not work on current DVD players. As a matter of fact, the whole DiVX scam won't even be unleashed on the public until sometime this summer. Those backstabbers don't have anything but vaporware, yet they announced it right before the holidays to purposely confuse the marketplace and hurt DVD sales.

Who would want it, you ask? Good question. They maintain that America prefers to rent movies rather than buy (which is true) so DiVX is a natural successor to the current rental market.

> This whole idea frightens me. I don't want a money-grubbing corporation to own the movies on my shelf.
>
> BY MOJO

Many stores already rent DVD and many more plan to do so, making DiVX a moot point.

However, Mr. Sharp and his cohorts feel that we should not underestimate how much Joe Public hates to walk back to the corner store to return a movie.

And there we have it. They are spending hundreds of millions of dollars to save us that 11:59 p.m. trip to Blockbuster. Sure, no one likes it, but that late-night walk is the only exercise the average renting couch potato gets! Americans will get fatter without it.

This whole idea frightens me. I don't want a money-grubbing corporation to own the movies on my shelf. I don't want to pay every time I want to watch the train wreck from *The Fugitive*, and I don't want the DiVX people to get their way, which would mean extending their pay-per-play scam to music CDs and software!

How can you fight it? Buy a DVD player now and enjoy it. Vote with your dollars and hit them where it hurts. Money is all these people understand and lack of it is the only thing that will make them go away. There are a lot of electronics stores out there so do me a favor, OK? Next time you need to visit one, just keep driving past Circuit City.

Mojo is a supervising animator at Foundation Imaging.

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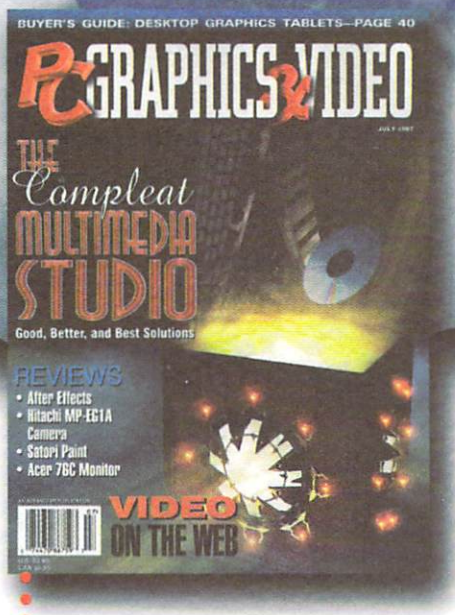

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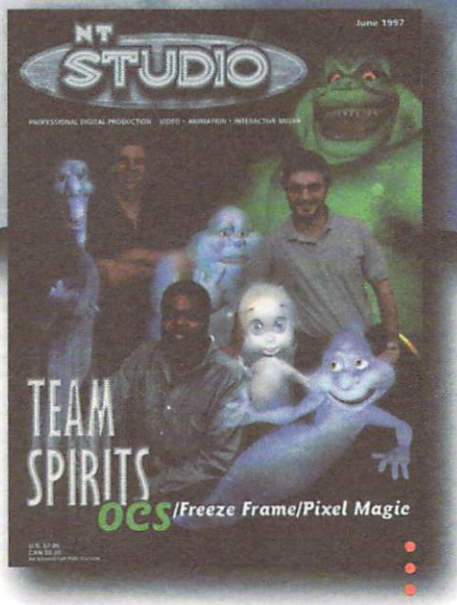

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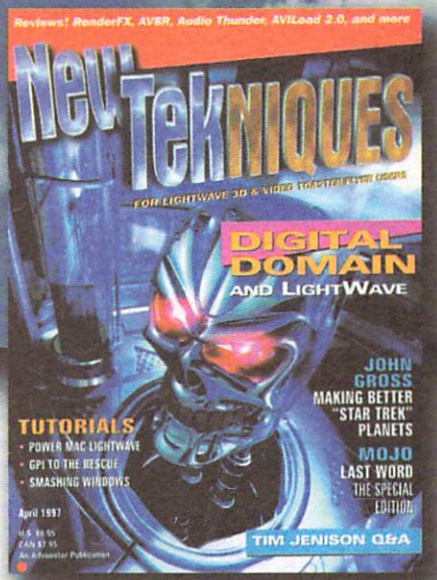

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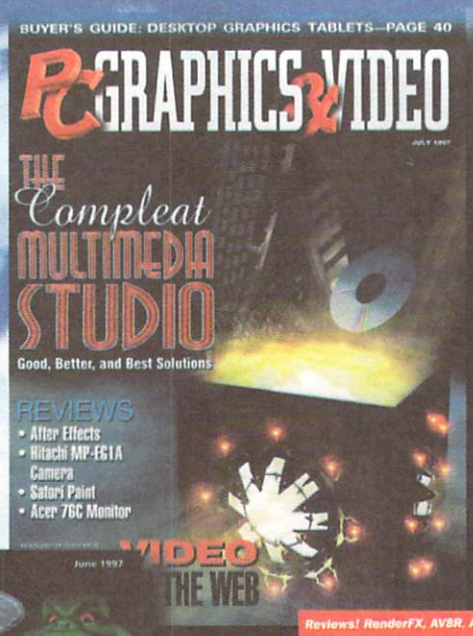

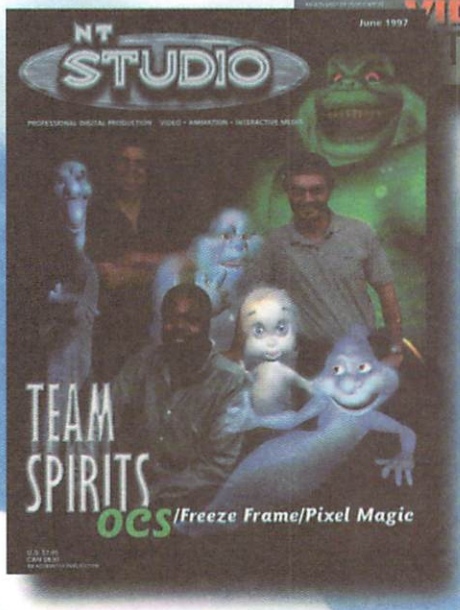

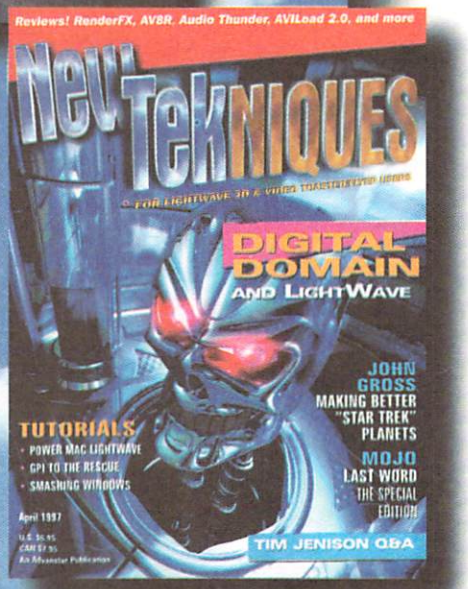

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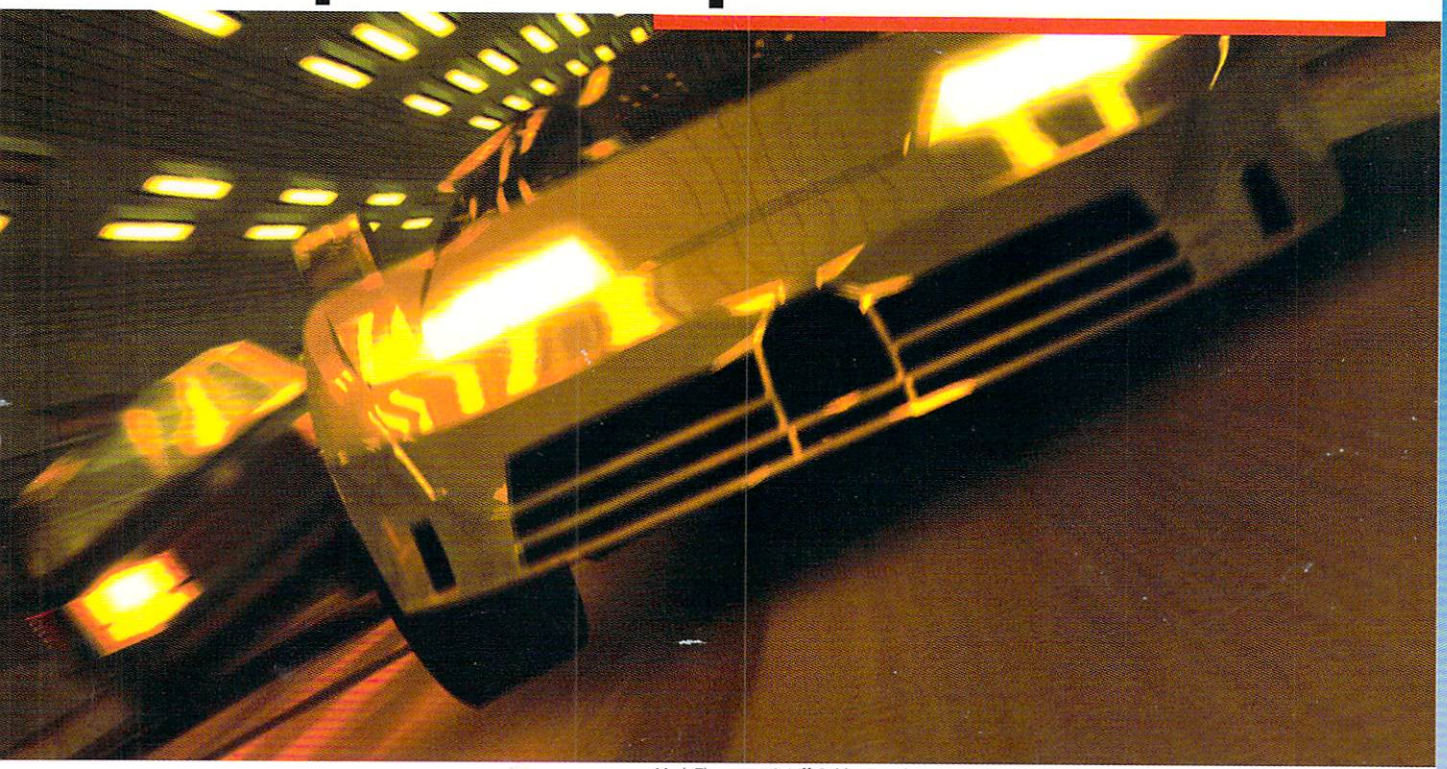

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